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CORPUS LUTEUM IN STERILITY

A VALUABLE report on the therapeutic uses of corpus luteum appears in *The Journal of Obstetrics and Gynæcology of the British Empire*, Vol. 31, No. 4, 1924, p. 580.

In the course of this article the authors state that in married subjects scanty menstruation is almost invariably accompanied by sterility, and in such cases they have found the results of corpus luteum treatment, in the absence of pelvic disease, so definite and startling, and comparing so favourably with the results obtained by the use of other gland products, that the latter have been discarded. Once menstruation was properly established, a short time only elapsed until pregnancy occurred, and this happened in 75% of the cases treated. The dose of corpus luteum prescribed was ten grains daily, gradually increased to a total daily dose of thirty grains. The drug was taken during the whole month, including the time of menstruation, and, if necessary, was continued for six months.

Reference is made to a patient who had never menstruated during three years of married life, and who commenced to do so after two months treatment. Pregnancy occurred two months later. Seven years afterwards, having never menstruated since the birth of the child, this lady again consulted the physician, with the result that a further course of corpus luteum was given and had a similar effect, a second child being born within a year after the recommencement of treatment.

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Lady Jones Lecture

ON

CRIPPLING DUE TO FRACTURES:

ITS PREVENTION AND REMEDY.

DELIVERED BEFORE THE UNIVERSITY OF LIVERPOOL, MAY 12TH, 1925,

BY

SIR ROBERT JONES, K.B.E., C.B., M.CH., F.R.C.S.

THERE are personal associations so intimately woven into the texture of this occasion that it is my duty in gratitude and in remembrance to recall them. This first triennial lecture was inaugurated by Mr. John Rankin in memory of my wife. To him I offer my deep gratitude for a thought that you will understand cannot be expressed in conventional terms, but must be accepted in terms that are nearer to silence. Secondly, I have to thank the Council of the University for the privilege—a source of pride as well as gratitude—which they accord me by once again offering me their honoured hospitality in this place.

I have chosen for this lecture a subject which has attracted my attention for many years. It deals with a neglected branch of surgery, and offers suggestions as to the remedy. While dramatic progress has been made in our art as it affects the brain, chest, and abdomen, there has been a deplorable inertia in the surgery of fractures. This is evident when we read the older writers from Hippocrates to Astley Cooper, Percival Pott, and R. W. Smith. The cause is not far to seek. The surgeon of olden days had far fewer problems to solve than are presented to the surgeon of to-day, who is constantly annexing territory previously the province of the physician. The older surgeon consequently had more time to study the obvious affections, such as fractures and dislocations. We owe to Arbuthnot Lane recognition of the good he effected by his operative campaign. He, at least, drew attention to the deplorable condition of the results of treatment of fractures in this country, and although many of us looked upon some of his operative procedures as drastic his attitude encouraged the spirit of introspection. This is exactly what was, and what is still, needed. I have written so often upon the relative values of open and closed treatment of fractures that I shall not dwell upon this aspect of the matter now. I willingly admit, however, that operative procedure is more than justified if a surgeon cannot obviate malunion and functional defect by non-operative mechanical means. Our position to-day, however, is tragic, for the majority of fractures treated by conservative, or non-operative, methods are badly handled, with resultant disability, and expert operative aid, if desired, is not always at hand. This is the reason I have ventured upon a critical survey of the causes which continue to produce thousands of cripples every year. There is no need to apologize for the choice of subject, whatever may be thought of the way in which it is presented.*

LESSONS OF THE WAR.

The treatment of fractures is at present a blot upon our surgical escutcheon. The great war afforded the most convincing proof of the mishandling of complicated, and even of simple, fractures. In the early period these cases arrived home with appalling deformities. Excessive shortening and malunion were the rule. It would, however, be unfair to blame surgeons for this. Men with no experience in this branch of work did the best they could, while men who understood how to treat fractures found the conditions such that it was impossible to obtain satisfactory results. They deplored the fact that the splints supplied were not those to which they were accustomed; that immediate evacuation was inevitable; and that continuity of treatment was impossible. Fractures of the femur serve as a notable example. The splint with which we are all so familiar, invented by H. O. Thomas, was barely known, and yet it was the type of splint which ultimately saved the situation. In 1916 the mortality from these fractures amounted to 80 per cent., a large proportion of the deaths occurring on their way to or at the casualty clearing stations. Later, when the Thomas splint was applied almost exclusively, and as near to the firing line as possible, we have it on the authority of Sir Henry Gray that the mortality in 1918 was reduced to 20 per cent. This is an astounding and inspiring fact, and led Colonel Crile, of the United States Army, to say that the Thomas splint did more to prevent death from shock than any other single measure.

The next great advance in the treatment of fractures at the front occurred when we were able to secure the segregation of cases. The country owes a great debt of gratitude to Major Meurice Sinclair for his most excellent work at Boulogne. After our earlier experience it was a delight to meet with his cases. His femurs came over with scarcely any shortening, and with excellent alignment. The problems of segregation and of team work had been overcome with very admirable results. In England, however, we were not in a position to segregate these fractures when they arrived. They were distributed to places which were most convenient as regards transport, but they were often denied efficient treatment. Splints were removed too soon, often changed unnecessarily, and the good work abroad was thus sadly interfered with. As in the case of our crippled children, our soldiers suffered from the want of efficient after-care and continuity of treatment. After a time permission was granted that all fractures of the femur should be segregated in our special military centres at home on their arrival from the front, and Colonels Watkin Williams and Pearson, and others, who had done good work in fracture hospitals abroad, were brought home to take charge of them. The results were astonishingly good. In 300 cases treated at one time at the special surgical centre at Edmonton the average shortening was about half an inch. In Liverpool, where 97 cases were at one time at Alder Hey and Knotty Ash, the measurements were similar. At Liverpool the Thomas splint was used in the way to which we are accustomed. At Edmonton the protected ice-tong calliper was employed by Pearson. In all these hospitals gunshot fractures were of the worst type, and the results proved the value of expert supervision, segregation, and team work.

The difference between such results and the average pre-war treatment may be emphasized by the statement of a surgeon to a large teaching hospital, who said of the femur, "I am satisfied if the shortening is not more than from one to two inches." Thomas, over thirty years ago, was unhappy if he had more than half an inch of shortening, and as a boy I have often helped him to put up a fractured femur in his rooms without an anaesthetic, and have immediately afterwards accompanied the patient home in a four-wheeled cab. This experience would more than establish the safety of immediate transport on the field of battle. Let me emphasize again that the success in the treatment of fractures during the later phases of the war was due to expert supervision, simplicity of apparatus, team work, segregation, and appropriate after-care. These are the lessons the war taught us. Are we going to apply them, and improve upon them, or are we to revert to the old bad way? Upon an answer to this question much depends, both in respect to the reputation of our teaching hospitals and to that of our profession as a whole. It will be admitted that our brethren all over the country, both in exalted and humble places, dread the responsibility which the treatment of a fracture entails because of results with which they are only too familiar. This is due to faults of teaching, and the responsibility does not rest with the general practitioner, but with the surgeons who were his teachers. Let us, therefore, first of all deal with our big teaching hospitals.

METHODS BY WHICH FRACTURES ARE BEING DEALT WITH AT THE "BIG TEACHING HOSPITALS."

I lay stress on the phrase "big teaching hospitals" because their responsibility in teaching generations of medical practitioners is the gravest. They have the means

* Readers are referred to the presidential address of Mr. Muirhead Little on "Specialism and General Surgery," delivered to the British Orthopaedic Association in 1918, and reported in the *Journal of Orthopaedic Surgery*, February, 1919. [A short abstract was published in the BRITISH MEDICAL JOURNAL for November 30th, 1918, p. 604.]

at their command, both as regards personnel and equipment. What they need is a more modern vision as to the needs of the student. In criticizing our teaching hospitals I may fall into the error of grouping them in such a way as to suggest that their methods are all quite alike. They may and do differ, but not sufficiently to make any of them adequate.

It will, I think, be generally agreed that the teaching of the proper treatment of fractures can only be effective when based on experience, not of mechanical detail alone, but also of the principles which relate to deformity. Every fracture should be looked upon as a potential deformity. Some of these deformities develop in very insidious ways. They may be traced to omissions or commissions, or both. They may arise during treatment, or when treatment is discarded. The least obvious frequently prove the most disabling. Function is impaired, not because of the presence of an ugly lump—often quite harmless—but if strain is cast upon joints above or below the fracture trouble begins. The external contour of a forearm may appear normal even when it hides a cross union. The surgeon called upon to teach should possess the experience enabling him to visualize all such difficulties and dangers, which are sure to encompass the practitioner in after-years. This necessity, however, is not recognized. It is the custom in big teaching hospitals that ambulatory fractures—that is, those among out-patients—are treated by junior officers. These officers are usually not supervised, and the department is not connected with any in-patient service. Results are not inspected by any higher authority. There is no probability that this officer has the knowledge necessary to teach, and it rests with him whether a case should be sent, usually for operation, to the wards. He is not appointed to the post long enough to acquire a sound working knowledge. He starts as the raw material, and rarely graduates as the finished product. To an especial degree what experience he acquires is largely due to mistakes which need never have occurred. This officer remains at his post, which is a subsidiary one, until he is happy enough to be removed to one which he considers more congenial and important. He has no definite period assigned to him with the object of making him useful to the department, but he leaves it when another junior takes his place, who probably repeats all his mistakes. In this way we have a constantly changing personnel, who are neither able to reflect credit on the hospital nor do bare justice to their responsibilities. This system is hopelessly wrong and does not admit of argument, much less of defence.

When we come to deal with recumbent or in-patient fractures we are scarcely, if at all, better off, for they are generally left to the care of the house-surgeon. The honorary surgeon may cast an eye upon them from time to time, but as a rule he resents the occupation of beds by patients in whose infirmity he has little or no interest. Indeed, the house-surgeon is in an awkward dilemma, for he is expected to treat a fracture adequately and expeditiously, while at the same time he is unpopular because he blocks a bed. He has only one thing to do, and as a rule he does it. The fracture is put up in plaster-of-Paris and sent out at the first opportunity. A more unscientific and certainly less satisfactory method it is not easy to conceive. The reduction of a difficult fracture is not the work of a moment, but often of days. There is a finality about placing a fracture in a plaster case which does not admit of compromise, for it assumes the reduction to be immediate, complete, and ended. Readjustment of the bone ends cannot be made. An experienced surgeon knows this, and yet it is a commonplace that fractures of the shaft of the femur are frequently taken into our hospitals to be almost immediately evacuated in plaster. Even more pathetic is the fate of a patient with a fractured neck of the femur, one of the gravest of accidents. Such a case is rarely admitted into the wards of a teaching hospital, but is sent directly to a Poor Law infirmary. I have not an unkind word to say of this type of institution—many of them are most admirably and efficiently conducted. There are some of them, however, quite unfitted for the modern treatment of fractures, and our teaching hospitals should appreciate this fact.

The surgeons, with rare exceptions, neglect to teach because few of them are sufficiently interested or sufficiently informed to do so. They do not emphasize the essential points. Their teaching is perfunctory, not intensive. They pay homage to a duty, but there is no true allegiance. Should the fracture be a spontaneous one, due to a malignant tumour, its rarity arouses every spark of enthusiasm, and opens a fine field for prolonged contemplation. But the common, everyday fracture, the treatment of which may make or mar a student after his graduation, is neglected. Is it a wonder that so many of our large teaching hospitals suffer in reputation? But let us leave this aspect of the matter for a moment and consider the general question from two aspects—the effect on the patient and on the medical student.

(*a*) *The Effect on the Patient.*

The object of treatment is the restoration of function with the least risk to the patient, and the least anxiety to the surgeon. The large proportion of fractures occur in healthy young adults. To them, and to their families, it is of paramount importance that they leave hospital with function restored. Again, it is important that the period of convalescence should be as short as modern methods can ensure. To a surgeon who takes pride in his work the full recovery from a bad fracture should be a thrilling achievement, while malunion, stiffened joints, and wage-earning disabilities should, as correspondingly, fill him with remorse. To the patient it is inconceivable that a hospital with a world-wide reputation should give him anything but the very best, and I think we as a profession feel the same.

(*b*) *The Effect on the Medical Student.*

The effect on the medical student is deplorable. He is brought up in an atmosphere where the teaching of the treatment of fractures is placed in a subsidiary position. It is only after he has qualified that he realizes how little he knows of the subject, and how often by the grim irony of fate he is reminded of it. It is the one department of medicine in which mistakes cannot be hidden, and which the public never forgive. The haunting limp and the well thumbed radiograph are a constant menace to a surgeon's future, and I have known more than one instance where a young practitioner—the victim to such a fate—has had to strike his camp and travel further afield.

Common Mistakes.

Now, what are the common mistakes which we find as the result of imperfect knowledge and deficient tuition? These mistakes are rife both in cases treated within and without our hospitals. I have only time to state a few of them, and they will represent average defects of treatment met with every day in our consulting rooms. To take a common example, it must be recognized that although an end-to-end apposition of a fracture is desirable, it is not essential to perfect function. Indeed, the ill effects following fractures are often due to injury to the soft parts, as may be instanced by ischaemic palsy and injuries to nerves. An end-to-end apposition with imperfect deflection of body weight is infinitely more serious than a slight overlapping, where body weight falls in correct line. The smooth working of a limb depends on preserving the true axis of movement of a joint, so that the stresses of muscular action may act across the joint in normal lines. Otherwise abnormal stress will produce abnormal strain, for we are dealing with living bone in accordance with Wolff's law, which is the physiological equivalent of that universal law that strain is proportional to stress. In dealing with fractures of the shafts of long bones the first consideration, therefore, is to secure a true anatomical alignment of the bone, so that the axis of movement of the joints at the two ends of the bone may retain their correct relative positions. Many crippling deformities are due to a want of recognition of this fact.

Again, let us instance the femur. It is a common experience to find elderly persons, whom the hospitals were unable to treat, handicapped by the extreme disabilities

which follow fracture of the neck of the femur. The limb is shortened, adducted, and rotated outwards, and yet quite a large proportion of such cases simply but properly treated would have resumed their useful citizenship. Abduction and inward rotation under extension would have secured in the limb a range of movement which would have more evenly distributed the pressure of the head in the acetabulum, while later a weight-bearing splint would have prevented the shortening. I have met students who have never seen such a case treated, but in after-life the full responsibility may be thrust upon them. Again, how common a thing it is to meet with an old case of fracture of the upper third hobbling with a shortened and adducted limb, his body weight so deflected as to strain both hip and knee. By a simple manipulation and fixation this catastrophe could have been avoided. Or it may be a fracture of the middle of the femur with lateral or antero-posterior angulation, with which any practitioner could have dealt if his tuition had been effective. The lessons of the war should have impressed everyone with the knowledge that a femur in good alignment while recumbent would almost surely become crooked if walked upon without weight-bearing protection. Or take that most common and distressing deformity following a fracture of the lower third of the femur due to sagging at the seat of fracture, and resulting in a genu recurvatum. A piece of bandage used as a sling under the seat of fracture should easily prevent such a deformity.

Such deplorable results are frequently found. Every excuse but the right one is offered. A common one is muscular spasm. My experience in the treatment of fracture is that if muscles are sufficiently controlled they come to rest and cease to struggle, but that if the control is inefficient or intermittent then reflex movements are active, and that all muscles enervated from the same region share more or less in the excitability. I do not believe that the desire to contract is as inherent in muscles as if it were original sin. How commonly we see a knock-knee following a fracture of the lower third of the tibia. This is generally due to the common practice of setting a fracture of the tibia as if it were a straight bone; we place a pad on the inner side of the ankle in such a way as to obliterate the normal curve. But of all fractures which are badly managed that described by Percival Pott is the most common. A distinguished hospital surgeon, who looked after the London police, stated once that he had never known a police officer who had sustained a Pott's fracture return to his full duty. This statement is a notable testimony to the inefficiency of routine hospital treatment, for most of such fractures are taken direct to our teaching centres. As we all know, a Pott's fracture exhibits a dislocation backwards of the foot, together with eversion. We constantly find the unreduced dislocation as an end-result; yet this dislocation is never difficult to reduce provided the method has been taught. The reduction of the deformity should be undertaken at the earliest possible moment, although it can often be accomplished by manipulation at any time under three weeks. Every student should be taught that the knee should be fully flexed, the heel pulled forwards, and the lower end of the tibia simultaneously pushed backwards. The reduction is usually accompanied by a click, which is heard and felt as clearly as in the reduction of a dislocated shoulder. The foot should be fixed in inversion. Even if the bones are restored to their normal relationship eversion will recur later unless during standing and walking body weight is deflected to the outer side of the tarsus.

In the upper extremity, how common it is to find a stiff elbow following a fracture just above or through the joint, and this sometimes in spite of complete flexion. Failure to reduce the fracture accurately is generally the cause of this. It is not enough to take hold of the arm and merely to flex it. It should first of all be supinated, then extended and pulled, and while the upper end of the fracture is pushed back, the forearm should be pulled forwards and flexed. A student should be taught this manipulation, for it will save him many a serious disappointment. The application of the internal angular splint is happily becoming less frequent. It is a pernicious method. The advantage of the manipulation I have described is invaluable to the practitioner, for it is applicable to most fractures of the elbow, and indeed to dislocations also. I could multiply these various types of fractures, but it is sufficient to give these few clinical illustrations. There are, however, other general principles which are commonly ignored, and to which I will refer.

Avoidable Complications.

First, let me give a word of warning against the growing tendency of the immediate application of plaster-of-Paris. It assumes, as I have said, the immediate and complete reduction of a fracture, which is not always possible. It prevents the intelligent use of pads, and does not allow of inspection and supervision. Unless applied by an expert it often tends to interfere with the vitality of the limb because of circular compression. If put on a limb newly injured it will become slack as soon as the swelling subsides. It does not permit of massage, so often necessary to hasten recovery. In spite of this, circumstances may arise where the application of plaster is the only available procedure. No student should be allowed to leave his hospital until he is familiar with the modern methods of applying plaster. A badly applied plaster often proves a very dangerous splint, and is a common cause of non-union and of pressure sores.

The student is not sufficiently warned against the pressure slough, nor the best ways of avoiding it. A slough may occur in twelve hours or less if plaster is placed over a thinly clad bone, and while developing give rise to nothing more than discomfort. I have known deep sloughs occur without any complaint having been made by the patient. This type, which occurs without pain, is generally the worst, the pressure over bone having benumbed the skin from the first. If, therefore, it becomes imperative to employ pads on such places they should be examined and changed frequently, despite the fact that the patient may be feeling very comfortable.

Another defect in the student's training, if we can consider it as reflected in the practitioner, relates to delayed union and non-union. Granted a fair apposition, non-union rarely occurs. It is generally the result of nervousness and impatience. Some surgeons are never content unless they worry the fractured ends week after week to see how consolidation proceeds. Such procedure is as unscientific as the action of a cook who opens her oven door every five minutes to see how the hot-pot progresses. Until the normal period of completion of consolidation, absolute rest should be ensured. If union is delayed the surgeon should be patient. I have often known a fracture of the shaft of the tibia take many months to unite.

After-treatment and Protection.

Another source of error is to be traced to deficient instruction in prognosis. The student is not taught the length of time restraint should be continued, nor the nature of after-care. Even to-day, textbooks do not instruct him as to when he may reasonably expect complete consolidation. The result is that a patient may leave a surgeon with a limb of normal form and length, and in a few weeks it may be short and crooked. It cannot be too clearly emphasized that a lower limb which can pass the test of a manual examination may completely fail when body weight is superimposed. Adequate protection should, therefore, always be given to a fractured limb when walking is prescribed. These faults in principle and errors in technique are the direct outcome of imperfect instruction, and the student has a just cause of complaint. In spite of a well equipped physiotherapy department attached to the hospital, how few students are able to give intelligent instruction to a masseuse, or to direct a gymnast in treating a deformity, or show an electrotherapeutist the muscles he should stimulate in order to overcome weakness. The instruction generally given is, "Have your arm massaged," or "Use the faradic current," or "Give exercises to this man." We blame the physiotherapists if they do not carry out the doctor's instructions; we do not dwell on the fact that the doctors—with few exceptions—do not possess the knowledge to instruct. Surely there is some-

thing radically wrong with a syllabus which leaves the students ignorant in matters of such practical importance. It is an open invitation to every species of quack.

How few students have been taught to distinguish between a joint which may be moved and one which should be kept at rest—and how many bitter disappointments result from this. How few men know how to handle a fracture; how to hold the broken arm with a minimum of pain; how to feel for crepitation; how to avoid muscular spasm; how to reduce deformity, and, as it has been called, "set" the fracture. A surgeon who is interested in his subject, and knows it, will teach the student more by demonstrating one case than can ever be learnt by the student in personally handling twenty cases in a spirit of adventure. The student should be taught to use his eyes, his measuring tape, and the art of reducing a fracture almost painlessly by postural muscle relaxation. Such an education in manipulation is worth any amount of untutored experience. The rough handling of fractures by the unskilful is an outrage on a patient, and when done in the presence of a student is an extremely bad example.

I might multiply instances in evidence of inadequate tuition, but this is no longer needed. The cry of the practitioners all over the country is, "We have not been taught." It is, I submit, our duty to remedy all this.

It is not my intention to deal with malunited fractures, but it is necessary to emphasize one fact. If the treatment after correction is no better than in the first instance there will be a repetition of the tragedy. A malunited fracture cannot be cured merely by an operation; all the operation can do is to reconstruct the fracture, and a satisfactory result can only occur by the maintenance of the alignment until consolidation of the bone is complete.

ORGANIZATION NEEDED: THE FRACTURE CLINIC.

As I have already indicated, the permanent lessons of the war were not concerned solely with the value of certain methods of treatment, but rather with the essential importance of the efficient organization and handling of clinical material. It was made more clear to us abroad than it is even in our general civilian hospitals that the wide field of general surgery could not be creditably traversed by one and the same man. Team work and segregation in many fields of surgical endeavour saved the lives of patients, and the reputation of surgery. This became evident in fractures more than in any other branch of work. I have no hesitation in saying that greater progress was made in the treatment of fractures during the four years of war than had occurred during a generation in our big teaching hospitals. Beginning with complicated and ill considered contrivances, we developed on lines of simplicity to a very efficient goal. The experience we gained then we have to apply now to the problems of civil life. Brilliant achievements in abdominal surgery during the past twenty years have proved irresistible to the imagination of our younger surgeons. The less exciting disabilities of the extremities have been crowded out of the wards and out of their minds.

The treatment of fractures must be placed on a different plane. Our students must be taught, and our teachers must be wisely chosen. In developing a scheme, certain general principles must be agreed to:

1. The necessity for the segregation of in-patient fractures either into: (*a*) wards under the control of a special surgical unit, or (*b*) in special wards not allocated to one unit alone.

2. The creation of a special out-patient fracture clinic, to be included with the fracture wards as part of a general scheme. Out-patient fractures should not be dealt with as a separate entity—in other words, their control should be under the surgeon or surgeons in charge of the fracture wards.

3. A surgeon in charge of the fracture department should be a consultant, the director of a unit, and one in whose practice and teaching the treatment of fractures will be maintained during the whole of his active surgical career. If there exists an orthopaedic department, as should be the case in every teaching hospital, the chief of this department should be one of the surgeons in charge of fractures—even if he is not the only one.

In an ideal scheme the fracture wards should form part of the orthopaedic service; this would simplify both the organization and the teaching. It is certain that no real advance in the treatment of fractures will ever take place if the department is placed on a secondary plane, which is inevitable if the system is inaugurated or maintained of leaving it under the control of a junior surgical officer, who makes this position a mere stepping-stone to some other surgical post.

The fracture team should consist of:

1. One or more surgeons, including the orthopaedic surgeon.

2. A senior assistant. This appointment should be well thought out, and only given to a man with special qualification for the post. There should be security of tenure for a period sufficiently long to make him not only expert, but to secure his skill for the training of the students. He should display special interest in the surgery of the extremities, and preferably intend to follow it up. I consider that the success or failure of the department will largely depend upon this appointment. It may be asked, "What is to become of this assistant in after-life? How is he to earn his living? Is there room for fracture specialists in private practice?" My answer is that if the right man is chosen for this post he will almost surely gravitate to orthopaedic work, where his knowledge will be of the greatest service, and form an integral part of his expert education.

3. The third member of the team should be a physiotherapist, preferably the chief of his department. In addition to these there will be the house-surgeons, who attend the clinic as part of their duties, dressers, and clinical assistants.

4. Another most important member of the fracture team should be a sister, specially trained, who should be in charge of the fracture ward. She should remain in undisturbed possession. The care and nursing of fracture cases requires very considerable skill and training, and it is essential that the sister should not be transferred to other departments.

If the fracture ward is under the control of more than one surgeon the first assistant should be in the service of all. He will maintain a salutary rivalry between his various chiefs, which is an important step towards efficiency. I lay the greatest stress upon the segregation of fractures in special wards, *even in those hospitals which do not specialize in teaching*. It makes for healthy criticism, and often to much-needed introspection. Surgeon A, with a case of shortened malunited femur, will realize his limitations when he sees what Surgeon B can do with a similar injury. Surgeon C may feel that his reputation would be enhanced if he handed over his fractures to a more interested colleague.

The Magnitude of the Problem.

What proportion of beds should be put aside for fractures? My friend Mr. Platt of Manchester tells me he has worked it out to be about 10 per cent. In a hospital of 300 beds with five surgical units, each surgeon would direct 60. If the fracture cases are under one control, 35 of his 60 beds would be devoted to them. This would supply an ample field for instruction. Let us assume we have our beds and an expert staff of teachers. What can be done in order that the student may derive full advantage from the scheme?

The Plan of Instruction.

In the first place, once or twice a week there should be an out-patient fracture clinic, which all senior students are obliged to attend. At least twelve attendances should be compulsory. No formal lectures are needed, but, instead, a series of clinical demonstrations, in which groups of fractures are collected and compared, and instruction given in relation to diagnosis, prognosis, and end-results. More especially the student should be taught the principles that underlie the prevention of deformity and its correction. The tuition must be direct and simple, most of the time being devoted to the common fractures with which the practitioner is likely to meet. The *x*-ray department, with the wealth of information it represents, should be in close touch with the fracture clinic. The student should be

taught never to lose an opportunity of obtaining an *x*-ray photograph, and, above all, endeavour to derive instruction in interpreting it. In 1900 I wrote:

"The advent of the *x* rays has added immensely to the accuracy of our knowledge and to the classification of our cases, and has saved our patient from much unnecessary and often aimless manipulation. We must, however, beware that we do not paralyse our diagnostic faculties from pure inanition. The Roentgen rays should not usurp every other diagnostic means at our disposal."

I think these words are true to-day. In the fracture clinic measurements and visual impressions as practised by the great past clinicians should be recorded, and comparisons made between the healthy and the injured limb. Thus the student will be taught to diagnose the existence of a fracture, in the absence of a radiogram, with the least possible discomfort to the patient. Indeed, in the ideal fracture clinic the groan of an adult and the tears of a child should be a rare event. In this clinic will be found the common deformities so often associated with simple fractures. The lessons he will learn from these will be of incalculable service to the student in later life.

The student should not leave the fracture clinic without having practical experience, not merely of putting on plaster bandages, but applying them artistically and well. Nor should he be certified until he has a sound working knowledge of the application of splints.

The Choice of Splints.

At this stage I should like again to emphasize the urgent necessity there is for each hospital to scrap its useless splints and retain for teaching purposes only those of known efficiency. Bearing on this point, I will tell you an experience I had during the war. An army surgeon took me into a large shed the walls of which were covered by hundreds and thousands of splints of every type and age. I stood positively bewildered. There were hardly any of them I knew how to use. I asked the very intelligent officer who had charge of them what use could possibly be made of them. He knew the tragedy as he told me, "They will all be sent to the front when the slaughter begins." I can imagine the utter hopelessness of even the most experienced surgeons in the presence of such futile implements. Hospital staffs should, from time to time, meet and select the most useful—and they are generally the simplest—splints, and no student should graduate unless he has completely mastered their correct application. Furthermore, in order to simplify the training and to stabilize the examination of the students, this idea could be extended by the formation of a committee, representative of all teaching hospitals, to decide upon the best type of splints.

This would be of immense service in a national emergency, and would save the student much waste of time. It is a harrowing thought that many thousands of lives would have been saved abroad if every surgeon had been taught to apply splints correctly and expeditiously, and if only those splints had been at hand whose efficiency had been tested. We were able to be of considerable help in this matter to our American colleagues, who learnt from our mistakes, and they published an illustrated little handbook of splints, simple in construction and effective in use, which every surgeon had to master thoroughly. Instruction in a fracture clinic such as I have outlined would have met the urgent need in the great war, and such dire experiences as we encountered in its early stages should leave an indelible impression upon our mind and conduct.

The instruction carried out in the out-patient department should next be continued in the fracture ward, where the best methods of dealing with the recumbent cases could be taught.

Conclusion.

I venture to suggest that the scheme I have formulated is neither difficult in conception nor revolutionary to bring into effect. In our large teaching hospitals it means merely a practical readjustment of studies. There is sometimes a natural inclination on the part of the general surgeon to resist what he fears to be an encroachment of specialism. This, I am happy to think, is less evident than in days gone by. There is no more circumscribed a specialty than that of the surgery of the abdomen. That an expert abdominal surgeon often appears in other parts does not alter the fact. Many men who have excelled in the subject of their choice have told me they would be glad to hand over their fracture cases, but, they ask, "To whom?" Without a fracture department there is no remedy for them. There can be little doubt that many surgeons would, to their advantage, prefer to leave such cases in the hands of a fracture team than be held responsible for mistakes, which are bound to be made by inexperienced juniors. Even if they did not hand their cases over to a colleague, they would welcome the assistance of an expert first assistant. The average hospital surgeon takes neither pride nor scientific interest in the treatment of fractures. He knows it himself, his house-surgeons know it, and so do the students. Wherein and with whom lies an advantage? No! it is not a mere matter of the encroachment of specialism, but a call to our sense of proportion and sense of duty. Whether we use the term "specialism" or not, there is no mind so comprehensive that it can keep pace with all the requirements of modern surgery.

Another criticism likely to be levelled against this scheme is that the student curriculum is already too overcrowded. This does not bear examination. We do not wish to crowd the student's mind; on the contrary, we desire to simplify and clarify his instruction. By securing expert men to teach we exclude much waste of energy. His education becomes intensive instead of being diffuse and desultory. He is taught what is necessary and practical by teachers who have a real knowledge and interest in their subject. When we find students crowding the operating theatre on every opportunity, watching work they will probably never be called upon to do, and this for years, we appreciate how valuable time is wasted. It is doubtless necessary that they should know something of intricate and rare cases, but the out-patient department affords them a better equipment in after-life than academic lectures, the matter of which they can equally well glean from textbooks.

Another objection that may be urged is that our hospitals are already too crowded, and that the so-called chronic cases should not be allowed to exclude the acute ones. This is but poor comfort to a young working man sent off to a Poor Law infirmary, with a wife and family dependent upon him. It is inefficient treatment and neglect which transform a simple fracture to a chronic deformity. It is far better for our hospital authorities to say, "We are not prepared to treat fractures," than that they should take on responsibilities which they cannot meet. The responsibility is not met by sending a fracture of the femur from their door directly to a Poor Law infirmary, unless they know that its staff and equipment can meet the indications. On the contrary, they are very much to blame. We cannot disguise the fact that great numbers of adult cripples are manufactured by want of adequate provision. If our city hospitals admit they cannot cope with the problem for want of beds, wards should be procured in Poor Law infirmaries or other institutions. These wards, however, should be fully staffed and equipped, and brought into close association with our teaching centres. But whatever the arrangement, the student should have the full benefit of it. There can be no justification for any system which adds to the complexity, and not to the relief, of our cripple problem.

My early education with H. O. Thomas brought me into close contact with every type of cripple due to neglected fracture which he was called upon to treat. Experience since that time has led me to the conclusion that the same old mistakes occur now as they did then, and for this reason I have tried to indicate a remedy.

I earnestly hope that it will not be thought I have betrayed any spirit of hostility in this address. Nothing has been further from my mind. My aim has been to express in a temperate manner opinions which are shared by many distinguished hospital surgeons. I have spoken plainly, as I know you would have me do, but it has been my endeavour to understate rather than to exaggerate the defects of our present system. May I hope that my remarks will be received in the friendly spirit in which they are offered. Should they be the means of opening a new chapter in the organization and handling of fractures I shall rejoice, for most assuredly a blot on British surgery will thereby be erased.

A STUDY OF THE HAEMOCLASIC CRISIS TEST FOR LIVER FUNCTION:

WITH SPECIAL REFERENCE TO THE LEUCOCYTIC CHANGES.

BY

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IN 1920 Widal, Abrami, and Ivanesco[1] described a new test for liver function under the title "digestive haemoclasis." From experiments on dogs they claim to have proved that during protein digestion the peptones absorbed from the intestine are arrested by the liver ("proteopexic function") and do not reach the general circulation. In the normal dog the protein meal excites a digestion leucocytosis. On the other hand, intravenous injection of peptone into the systemic circulation in a fasting dog immediately provokes a "haemoclasic crisis"—namely: (*a*) leucopenia with a relative lymphocytosis; (*b*) fall of blood pressure; (*c*) hypercoagulability; (*d*) decrease of the refractometric index of the serum. These data were then applied as a clinical diagnostic test for hepatic insufficiency in man, on the theory that in liver disease the proteopexic function is impaired or destroyed and allows a haemoclasic crisis to develop after a protein meal. In practice the test is extremely simple, serial leucocytic counts being all that are required according to Widal. Estimations of blood pressure, coagulation, and refractometric index are not essential for diagnosis.

Preliminary starvation of the patient is essential (five hours at least). A leucocytic count is done and the standard test meal, which is 200 c.cm. of milk, is immediately given. The counts are repeated every twenty minutes for one hour. In liver disease a leucopenia of 30 to 70 per cent. with a relative lymphocytosis develops and reaches its maximum in twenty to forty minutes after the test meal. A leucocytosis appears about one and a half hours after the milk. Associated with the leucopenia there is a fall of blood pressure (10 to 20 mm. Hg), hypercoagulability, and a fall in the serum index. With 8 grams of dried casein (=200 c.cm. milk) the reaction is intense and precocious. Widal found that in 39 cases of definite liver disease 38 gave a positive reaction. He claims that the test is extremely sensitive, being capable of detecting "latent hepatism" and also liver damage due to salvarsan compounds. It is negative in acholuric jaundice. In 11 normal persons the test was negative; in 9 a leucocytosis appeared and in 2 no appreciable change; in all the blood pressure rose 10 to 30 mm. The reaction was also negative in diseases of the alimentary tract and in other conditions in which the liver was intact.

In criticism of Widal's work it may be said that although the accuracy of the test depends entirely on the technique employed in counting and the interpretation of the results therefrom, yet he omits to describe his technique and gives no protocols of his counts. Only one count is done before the test meal, and this is accepted as a fixed point on which to interpret the subsequent variations; but this assumes that in a starving person the number of leucocytes is either constant or if fluctuations occur they are so small as to introduce no serious error. The extensive literature provoked by the test is open to the same criticism, and is itself sufficiently conflicting to throw doubt on the value of the reaction as a means of clinical diagnosis in hepatic insufficiency.

Observations on the Haemoclasic Crisis.

My own observations refer to the leucocytic changes in (1) cases of liver disease, including acholuric jaundice and persons treated with novarsenobillon (N.A.B.), after 200 c.cm. of milk; (2) normal persons after 200 c.cm. of milk; (3) normal persons fed with substances other than milk; (4) normal persons after the local application of cold; (5) normal persons during physiological rest. Blood pressure readings were taken in some cases. No records were made of coagulation or serum refractometry.

Conditions of Experiment and Technique.—All subjects were starved of food and fluid overnight. To eliminate possible effects of periodicity, temperature, and exertion the zero count was made between 9 and 9.30 a.m. in a room of uniform temperature. Patients were examined in bed; normals were kept in a position of complete rest for at least half an hour before zero count.

No. 1 Laennec's cirrhosis. Male. 54 years. Confirmed post-mortem.

Time	0'	20'	40'	70'	Remarks
Total leukocytes	4450	4600	3700	3700	Leukopenia = 17% in 40'

Differential Count. Relative increase of polymorphs by 6% at leukopenia with relative and absolute decrease of lymphocytes.

No. 2. Obstructive Jaundice. Female. 57 years. Post-mortem—cancer head of pancreas; obstruction of common bile duct; metastases in liver.

Time	0'	20'	40'	70'	Remarks
Total leukocytes	4150	4700	3450	5400	Leukopenia = 17% in 40' Leukocytosis in 70'

Differential Count. Slight and irregular oscillations throughout but no evidence of lymphocytosis.
Blood Pressure. Rise of 6 mm. at leukopenia otherwise no change.

No. 3. Catarrhal Jaundice. Male. 24 years. Recovery.

Day of disease	0'	20'	40'	70'	Remarks
13th	7200	6300	5950	7350	Deep jaundice. Leukopenia 17% in 40'
22nd	8050	8200	8000	8900	Slight jaundice. Leukocytosis in 70'
34th	7100	6900	7000	7750	No jaundice; Urine—no bile constituents Leukocytosis in 70'
2 months later	6500	5150	5300	6750	At work 2 months. No jaundice; Urine—nil. Leukopenia = 21% in 20'

Differential Counts. On 13th and 22nd days showed irregular oscillations but no lymphocytosis.

No. 4. Acholuric Jaundice. Female. 6 years. Anæmia, splenomegaly; increased fragility of red cells. Urine—excess of urobilin. No other bile constituents. Two tests on consecutive days.

Time.	0'	20'	40'	70'	Remarks
Total leukocytes	9000	7050	8200	8500	Leukopenia = 22% in 20'
"	9000	7350	8150	7150	Leukopenia = 16% in 20'

Differential Count. There was a slight relative lymphocytosis (4%) coinciding with leukopenic phase in first test.

No. 5. Jaundice after N.A.B. Male. 26 years. Primary syphilis. Course 2·2 grms. N.A.B. Jaundice appeared 6 months later.

Time	0'	20'	40'	60'	Remarks
Total leukocytes	4100	3300	3650	3600	Deep jaundice. Leukopenia 19% in 20'

Blood Pressure. No appreciable change.

No. 6. Jaundice after N.A.B. Male. 27 years. Course = 2·2 grms. N.A.B. Jaundice and ascites appeared 2 months later. Post-mortem—advanced subacute atrophy of liver. Tested three times; the second test 4 days after the first and the third 16 days after the second.

Time	0'	20'	40'	60'	80'	Remarks
Total leukocytes	2300	2250	1600	1600	1800	Leukopenia = 30% in 40'
"	2300	1500	1450	2250	2200	Leukopenia = 36% in 40'
"	3050	2400	2450	2750	—	Leukopenia = 21% in 20'

Differential Counts. In first test a relative increase of polymorphs by 10% at maximum leukopenia. In second test an absolute and relative decrease of polymorphs and a relative lymphocytosis (7%) at time of maximum leukopenia.
Blood Pressure. Maximum depression was 4 mm. and did not coincide with leukopenia.

No. 7. Primary Syphilis before and during N.A.B. course. Male. 34 years. Primary chancre otherwise in good health. No evidence of liver disease; never had jaundice. Urine.—nil.

Time	0'	20'	40'	60'	70'	Remarks
Before treatment	6550	5100	5800	—	5850	Leukopenia = 22% in 20'
3 days after 0·45 grms N.A.B.	6650	6650	6500	—	6750	No change
1 day after a total course of 1·5 grms. N.A.B.	6550	5300	6200	5450	—	Leukopenia = 16% in 20'

Blood was taken from the ear with the usual precautions. Preliminary experiments with the Thoma-Zeiss counting chamber showed that this apparatus is subject to considerable error. All readings were made with the Fuchs-Rosenthal counting chamber and Thoma-Zeiss leucocytic pipette. The blood was diluted 1 in 10; it was shaken vigorously for three minutes. The cells on ten squares were counted, this number being one-fifth of the total in 1 c.mm. of undiluted blood. The cover-glass designed by Allport[2] was used; owing to its thickness (4 mm.) there is no risk of bending and it can be placed in position with formation of Newtonian rings before the counting chamber is charged. The error with this technique does not exceed 2 per cent., but variations of less than 10 per cent. from the zero count were accepted

as indicating no alteration in the number of leucocytes. The zero count was made immediately before ingestion of the test meal. For differential counts 500 cells were registered.

The Reaction in Liver Disease and after Novarsenobillon.

Observations were made in 7 cases with 200 c.cm. of cold milk, the maximum leucopenia recorded within one hour being taken as a positive result. The clinical details of the cases and the results of the test were as shown in the protocols (p. 914).

Examination of the protocols shows that in 4 cases (Nos. 1, 2, 5, 6) of obvious liver disease the test gave consistent results as indicated by a leucopenia of 17 to 36 per cent. in twenty to forty minutes, although in the severe and fatal case of obstructive jaundice (No. 2) the reaction is not very convincing, an echelon curve being present, which Widal regards as indicating improvement in liver insufficiency. The serial tests in catarrhal jaundice (No. 3) are conflicting. There is a positive reaction during the period of severe icterus, followed by a negative at a time when it is extremely doubtful if the liver function has been restored to normal, while two months later haemoclasis recurs in the absence of any clinical or urological signs of hepatic disturbance. The attempt to assess the value of the test during arsenobenzol treatment (No. 7) was frustrated by the presence of a positive reaction before treatment was commenced and in the absence of any signs of impaired liver function. The positive result in acholuric jaundice (No. 4) is contrary to Widal's statement that haemoclasis is absent in this disease. Although continual fluctuations appeared in the differential counts there was no evidence of a consistent lymphocytosis, and in none of the cases in which blood pressure readings were taken did a hypotension develop. The results, on the whole, discount the value of the test as a means of diagnosis in liver insufficiency, and further investigations have been directed to elucidating the mechanism and significance of the leucocytic variations in the haemoclasic test by a study of the reaction in normal persons subjected to various stimuli.

TABLE I. *Illustrating leukopenia after 200 cc. milk. (9 cases).*

Case No.	0'	10'	20'	30'	40'	50'	60'	70'	80'	90'	Percentage Fall
2.	9400	—	7100	—	7200	—	—	9300	—	—	24% in 20'
"	9000	3800	—	4100	—	4400	—	4300	—	—	22% in 10'
3.	5600	—	5150	—	4550	—	5150	—	5700	—	18% in 40'
"	5800	5150	—	4900	—	5000	—	5150	—	—	15% in 30'
4.	8050	—	6050	—	6250	—	—	6250	—	—	25% in 20'
"	9650	7850	—	—	7250	—	—	7550	—	—	25% in 40'
5.	3600	—	3350	—	3250	—	3200	—	—	—	10% in 40'
"	4050	3450	—	3300	—	—	3700	—	—	—	19% in 30'
10.	4000	—	3850	—	3600	—	—	3750	—	—	10% in 40'
"	3950	—	3200	—	2850	—	—	3400	—	—	27% in 40'
12.	4300	—	3450	—	3550	—	—	3650	—	—	20% in 20'
13.	7650	—	5500	—	—	5500	—	6050	—	—	28% in 20'
14.	6450	6650	—	—	5650	—	5650	—	—	—	12% in 40'
23.	5650	—	4200	—	5050	—	5050	—	—	5700	25% in 20'

TABLE II. *Illustrating no effect after 200 cc. milk (5 cases).*

Case No.	0'	10'	20'	30'	40'	50'	60'	70'	80'	90'
8.	5550	—	5350	—	5500	—	—	6150	—	—
"	5000	—	5050	—	4850	—	5000	—	—	—
19*	6000	6000	—	6200	—	6450	—	—	6300	—
24.	7350	—	6750	—	7450	—	—	7600	—	—
103.	4900	—	5300	—	4850	—	4300	—	—	4500
"	4800	—	5150	—	4700	—	4550	—	—	4300
18.	3300	—	3000	—	3150	—	—	2800	—	—

*Gradual fall to 3100 at end of 3 hours

TABLE III. *Illustrating leukocytosis after 200 cc. milk (3 cases).*

Case No.	0'	20'	30'	40'	50'	60'	70'	80'	100'	Percentage Rise
11.	6100	6200	—	—	7700	—	—	6600	—	26% in 50'
"	6000	5900	—	—	6950	—	—	6800	—	16% in 50'
104.	4900	6150	—	—	5900	—	5300	—	4600	25% in 20'
7.	7050	6400	—	7800	—	8000	—	—	—	10% in 40'
"	7850	7650	—	7300	—	8900	—	—	—	12% in 60'

TABLE IV. *Illustrating paradoxical results after 200 cc. milk (6 cases).*

Case No.	0'	10'	20'	30'	40'	50'	60'	70'	80'	90'	Result
1	7300	—	6100	—	5850	—	—	5100	—	5450	Leukopenia — 20% in 40'
"	4750	5350	—	4750	—	5050	—	—	6350	—	No effect. (Leukocytosis after one hour)
6.	3850	—	3750	—	4000	—	3900	—	—	—	No effect.
"	3900	4050	—	3250	—	—	3550	—	—	—	Leukopenia — 17% in 30'
100.	3650	—	6150	—	4250	—	8900	—	—	3700	Leukocytosis = 68% & 144% in 20' & 60'
"	3500	—	3300	—	3350	—	3850	—	—	4400	No effect. (Leukocytosis after one hour)
9	5300	—	4500	—	4700	—	—	4700	—	—	Leukopenia — 15% in 20'
"	4350	—	4700	—	4650	—	—	5150	—	—	No effect. (Leukocytosis after one hour)
101	7000	—	6200	—	5400	—	6750	—	—	5800	Leukopenia — 23% in 40'
"	6700	—	7250	—	7000	—	—	10850	—	7350	No effect. (Leukocytosis after one hour)
"	6850	—	7300	—	6900	—	—	—	9300	—	No effect. (Leukocytosis after one hour)
102	7300	—	5800	—	5600	—	—	6100	—	8600	Leukopenia = 23% in 40'. (Leukocytosis after one hour)
"	5800	4500	—	4500	—	5000	—	—	4900	—	Leukopenia — 22% in 10'
"	6000	—	10,000	—	5300	—	4600	—	—	5200	Leukocytosis — 67% in 20'

The Reaction in Normal Persons.

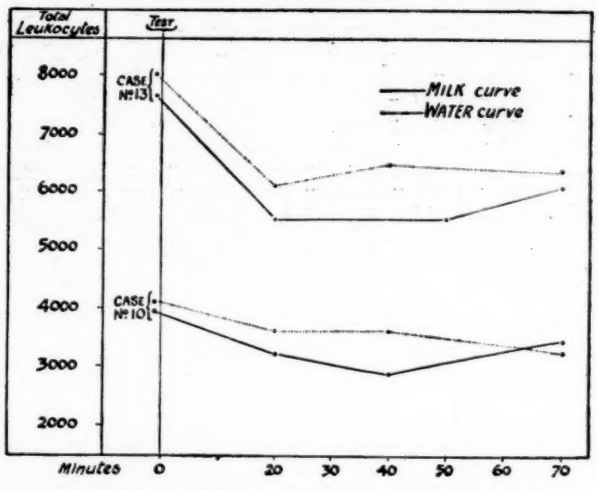
The majority were student volunteers; only those were accepted who gave no history of liver disease and in whom the urine contained no bile constituents. The total examined numbered 23, of whom 8 were tested once and 15 two or more times, usually on successive days. The test meal was 200 c.cm. of cold milk, and the result was registered on the percentage variation in one hour. As the leucocytic response varied not only in different persons but sometimes in the same person from day to day, it was necessary to divide the results into four groups—namely: (1) leucopenia, (2) no effect, (3) leucocytosis, (4) paradoxical. The protocols of these are shown in Tables I, II, III, and IV. The total examinations made were 40, and taking these as a basis there was a leucopenia 20 times (50 per cent.), leucocytosis 7 times (18 per cent.), and no effect 13 times (32 per cent.)—proportions which correspond fairly closely with the results of Schiff and Stransky[3] in infants. Consequently alimentary leucopenia is not peculiar to infancy, as suggested by Glazer,[4] but appears to occur as frequently in adults.

In the leucopenic series the extent of the fall varies from 10 to 28 per cent., often corresponding in the same person on consecutive days (Nos. 2, 3, 4, and 102). Usually the fall reaches its maximum in twenty to forty minutes, but in some cases the decline has set in or even reached its apogee ten minutes after the milk. Occasionally it is evanescent and only registered at one examination. The subsequent course of the curve is also variable, the count returning to the initial level or the fall persisting. The appearance of a leucocytosis after an hour is inconstant. Obviously in this group the curve is quite comparable in its general characters to that in liver disease, and it can be concluded that many normal persons react with a haemoclasic leucopenia. This agrees with Eisenstadt,[5] who found a leucopenia in normal adults (number not recorded) after 200 c.cm. of milk, in spite of the fact that he accepted a variation of less than 17 per cent. in the count as due to experimental error. However, in 4 normals (Zehnter[6]) and in 3 normals (Mauriac and Ragot[7]) there was no leucopenia after 20 c.cm. of milk. Unfortunately the authors do not state what other change took place. Whether the leucopenia can be attributed to the milk at all seems extremely doubtful. In 32 per cent. of my tests the count remained more or less constant for an hour or longer, and in several cases reacting with leucopenia the response to a second test showed that the milk had either no influence or appeared to produce a leucocytosis. Similarly it is difficult to accept the view that the milk produces a "digestion" leucocytosis—that is, a chemiotactic response to the products of digestion. Only in 18 per cent. of tests did a rise, which sometimes was evanescent, develop in one hour. The leucocytosis which Widal found to appear in about one and a half hours is not confirmed by my protocols, as the results in seventy to ninety minutes are quite variable—a rise only occurring in about half the cases. If the rise represented a true reaction to the milk products absorbed during digestion it should appear in every normal person within a definite period of time. Its absence cannot be attributed to the small amount of milk given, for in 6 normal persons fed with 400 c.cm. the leucocytic response was similar to that following half the amount. Moreover, the times selected for doing the counts

being arbitrary, it is difficult to avoid the impression that the oscillations are often more rapid than the observations indicate, and possibly the results in some cases might have been different if the counts had been made at shorter intervals, though technically it was impossible to do this and ensure accuracy.

In 10 cases selected from the three types of response the differential count revealed qualitative changes similar to those found in liver cases—that is, there was no schematic alteration. The blood pressure taken in 4 cases (2 leucopenia and 2 leucocytosis) showed oscillations of a few millimetres bearing no relation to the leucocytic curve. However, there are some investigators who find that leucocytosis does develop in normal persons. Holzer and Schilling[8] say that a digestion leucocytosis follows 200 c.cm. of milk or an equivalent amount of carbohydrate in normals. Feinblatt[9] tested 80 normal adults with 200 c.cm. of milk, and in every case a leucocytosis appeared, reaching its maximum after an hour. All the curves were surprisingly similar in character, and though the first count was made half an hour after the test meal a fall below the initial count was never registered. C. M. Wilson[10] also records a leucocytosis within one hour after 200 c.cm. of milk in 30 normal students. Nevertheless, in my observations there is no evidence that the ingestion of 200 to 400 c.cm. of milk produces a specific effect on the leucocytic content of the peripheral capillary blood, either in the form of a "digestion leucopenia" or a "digestion leucocytosis."

CHART A. Leukocytic curves after 200 cc. milk and 400 cc. distilled water in same person.



The Reaction in Normal Persons to Other Substances.

1. *Distilled Water.*—Under usual conditions of experiment 7 normal adults were given 400 c.cm. of cold distilled water. The results (Table V) show that one case reacted with a rise which reached its maximum of 23 per cent. in forty minutes, and in 6 cases a leucopenia of 11 to 32 per cent. developed in twenty to forty minutes. The differential counts in 4 cases gave similar results to those obtained in the milk cases. Evidently there is no essential difference in the response of normal persons to milk and water, as both substances give contradictory results and the curves are similar in their degree and periodicity of variation. There can hardly be any question of a chemical action as the cause of the leucocytic fluctuations following distilled water, and blood dilution is eliminated by the development of a rise in Case 25, and also by comparing the reaction to 200 c.cm. of milk and 400 c.cm. of distilled water in the same person. This was done in 4 cases (Nos. 10, 12, 13, 14). All reacted with a fall to both substances, but in Nos. 10 and 13, the comparative curves of which are shown in Chart A, the fall was greater with milk than with water. These results agree with the work of Moutier and Rachet,[11] who tested 10 persons with distilled water. A fall followed in 6 and a rise in 4, while in 9 of the cases the milk curve ran parallel to the water curve.

TABLE V. Illustrating leukocytic variations after 400 cc. distilled water.

Case No	0'	10'	20'	30'	40'	60'	70'	Result.
10.	4100	-	3650	-	3650	-	3200	Leukopenia = 11% in 20'
12.	6300	-	4300	-	4250	-	3700	Leukopenia = 32% in 40'
13.	8000	-	6100	-	6450	-	6300	Leukopenia = 24% in 20'
14.	8050	7700	-	6200	-	7300	-	Leukopenia = 23% in 30'
16.	6200	-	4500	-	4350	-	3600	Leukopenia = 30% in 40'
17.	4950	-	3900	-	3700	-	4250	Leukopenia = 25% in 40'
25.	4850	-	5800	-	5850	-	4850	Leukocytosis = 23% in 40'

2. *Casein.*—Three normal adults were fed on 30 grams of dried casein (=800 c.cm. of milk). In 2 cases there was a fall of 10 and 20 per cent. in twenty and forty minutes respectively, followed by a definite rise in seventy minutes in both of them. In the third case the count remained constant until the examinations ceased in eighty minutes.

3. *Butter-fat.*—One normal adult was fed on 30 grams of butter-fat. The leucocytic count remained unchanged during the test of seventy minutes. Therefore the tests with casein and butter-fat confirm the opinion that the leucocytic fluctuations do not depend on a chemical stimulus following absorption of the milk products.

The conclusions drawn from all the experiments are that the leucocytic variations are quite independent of the ingestion of food or fluid in the amounts given, and do not represent either a response to any chemical stimulus provided by the products of digestion or the effect of blood dilution following absorption of fluid.

The Reaction to the Local Application of Cold.

It is generally thought that the external application of cold, such as a cold bath, produces a leucocytosis. But Widal, Abrami, and Brissaud[12] maintain that exposure to cold is followed by a haemoclasic shock identical with that occurring in hepatic insufficiency. In dogs immersed in a bath at 2-3° for fifteen to forty-five minutes the crisis developed in ten to fifteen minutes from the moment of immersion and persisted for half an hour to an hour. Tinel and Santenoise[13] say that after freezing the finger with ethyl chloride for a few seconds there is an immediate fall in the leucocytic count by 2,000 to 4,000, but whether this occurs in the peripheral circulation generally or only in the domain of application is not made clear by the authors. On the other hand, Jolly and Saragea,[14] working with rats, found that leucopenia followed exposure to hot air. In my experiments the arm was immersed for twenty-five minutes in a water-bath at 8° C., a leucocytic count having been done previously from the finger. At the end of twenty-five minutes another count was done with the arm still in water; subsequent counts after removal from water. All counts were done locally—that is, from a finger of the immersed limb. Percentage variations were reckoned on the alterations appearing between zero and up to one hour from the time immersion ceased. Six normal adults were tested (Table VI). Three reacted with a leucocytosis, two with leucopenia, and in one there was no appreciable change. In 4 cases (Nos. 54-57) the differential counts revealed no consistent alterations. It is evident that under the conditions of experiment employed the local application of cold has no specific effect on the number of leucocytes—the cases falling into the three categories which have been described in connexion with alimentary stimulation. The results also appear to eliminate the possibility of the milk

TABLE VI. Illustrating leukocytic variations after the local application of cold.

Case No	Before Immersion	Immediately after	10'	30'	40'	50'	60'	70'	80'	Result
54.	6650	7350	-	7700	-	6650	-	-	-	Leukocytosis = 16% in 30'
53.	5350	5800	5200	5650	-	5700	-	-	-	No effect
54.	5100	6100	7050	-	5800	-	-	8100	-	Leukocytosis = 40% in 10'
55.	6050	4750	4500	-	3950	-	5350	-	5700	Leukopenia = 35% in 40'
56.	8150	6500	6900	7050	-	7350	-	-	-	Leukopenia = 20% (immediately after)
57.	6050	6250	6700	-	7250	-	8350	-	7850	Leukocytosis = 38% in 60'

or distilled water, which were given cold, exerting any specific influence on the leucocytic count by means of their low temperature.

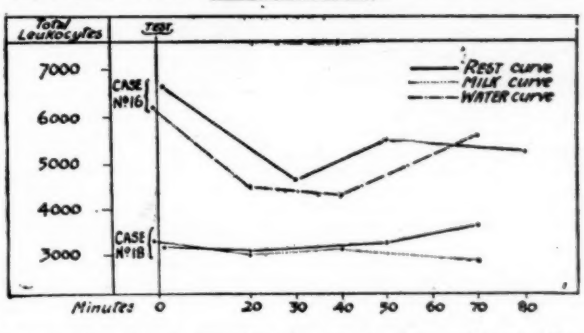
Leucocytic Variation during Physiological Rest.

The conflicting results obtained suggest that there must be some other factor wholly or partly responsible for the oscillations observed after the various stimuli used. It has already been said that Widal—and indeed nearly all writers on the subject of haemoclasis—has assumed that during physiological rest the number of leucocytes in the peripheral blood remains practically constant until the alimentary or other stimulus is applied. Consequently they have accepted a single pre-test count as representing a fixed point, subsequent variations from which are held to be the response to the stimulus. But my observations show conclusively that leucocytic equilibrium is not necessarily maintained in the absence of alimentary stimulation. I have examined 10 normal adults during physiological rest over periods ranging from eighty minutes to two hours and twenty minutes, the protocols of which are shown in Table VII. To make the readings comparable to my other observations the zero count is taken as a fixed point and the percentage variation calculated during the succeeding hour. If, however, the difference between the maximum and minimum counts over the whole period of observation is taken, the variation, in some cases, would be greater. The protocols show that during the first hour a fall occurred in 3 cases, a rise in 1 case, and in 6 cases the leucocytic content remained stable. Therefore each case falls into one of the three groups found after stimulation. Moreover, when oscillations occur during physiological rest, they are similar in rapidity and extent to those following milk, etc. This is confirmed by comparing the "rest" curve and "stimulation" curve in the same person, which was done in 7 cases. In 4 cases the milk curve and the "rest" curve ran parallel in 2, while the distilled water curve and the rest curve were similar in one of the three cases tested. This is illustrated in Chart B. Evidence of oscillation during physiological rest also appeared in persons subjected to the haemoclasic test. In all my protocols only one pre-test count has been recorded, but in 7 cases two counts were made at intervals of fifteen to twenty-five minutes, the test meal being given immediately after the second count. The percentage difference between the two counts in the 7 cases was: −13%; −10%; −9%; +16%; −7%; +4%; +30% (the *minus* sign indicates that the first count was the higher of the two; the *plus* sign the reverse). If the first count had been accepted as representing the leucocytic content immediately before the test meal the results would have been altered in 5 of the 7 cases.

TABLE VII. *Illustrating leukocytic variations during physiological rest.*

Case No	0'	20'	30'	40'	50'	70'	80'	90'	100'	110'	120'	130'	140'	Result.
15.	5350	–	3750	–	4300	–	4050	–	–	–	–	–	–	Fall = 32% in 30'
	4750	–	3600	–	4150	–	4400	–	–	–	–	–	–	Fall = 24% in 30'
16	6650	–	4700	–	5550	–	5200	–	–	–	–	–	–	Fall = 30% in 30'
17	4200	4000	–	4250	–	–	5250	–	–	4850	–	5350	–	No change in first hour
18	3200	3100	–	–	3250	3600	–	–	3400	–	–	–	–	No change
21	5300	5300	–	–	6100	–	–	5900	–	–	–	–	–	Rise = 15% in 50'
23	4400	4100	–	–	4650	–	–	4350	–	–	4350	–	–	No change
24	6700	–	6200	–	6850	–	6500	–	5900	–	6150	–	–	No change in first hour
25	5700	5650	–	5150	–	5500	–	–	–	5700	–	–	5250	No change in first hour
26	8600	7600	–	–	6900	8050	–	–	7550	–	–	8100	–	Fall = 20% in 50'
30	4450	–	4550	–	4450	4250	–	–	4550	–	–	–	–	No change

CHART B. *Leukocytic curve during rest compared with curve after 200 cc. milk or 400 cc. water in the same person.*



Fluctuation in the number of leucocytes apart from food has been noted by several observers. Mauriac and Cabouat,[15] examining the leucocytic variations in two normal adults, not in absolute physiological rest, over a period of fifteen hours at intervals of thirty minutes, found considerable and sudden oscillations in the count. Servantie, Panzat, and Monod,[16] in one normal person during starvation, record fluctuations of 2,000 to 3,700 in counts done every ten minutes. Kobryner[17] concludes, from numerous observations made over long periods, that during physiological rest there is a leucocytic curve composed of large waves, which in their course show subsidiary variations, the latter sometimes exhibiting considerable oscillations. It is obvious, therefore, that the single count before stimulation cannot be accepted as necessarily indicating a state of equilibrium. Frequently it is only an index of the number at the particular moment, and represents nothing more than a point on one of the oscillations of the physiological rest curve.

Furthermore, a study of the total series of pre-test counts in my observations indicates that the particular result obtained in the haemoclasic test depends on the phase of the normal curve at the moment of test. The lowest counts were between 3,000 and 4,000, the highest between 8,000 and 9,650, and these represent the extreme limits of undulation in the series of normal persons. In every count above 8,000 the test was followed by a considerable fall—that is, at the time when the curve was presumably at its zenith—while the variable results following low and intermediate counts appear to be due to the particular direction pursued by the curve during the period of test. But my observations also show that phases of equilibrium do occur, and are associated more especially with relatively low counts. Possibly this may explain why Friedemann and Nubian[18] failed to obtain a fall in cases of leucopenia due to various causes and in which they concluded a permanent state of haemoclasis existed. Even assuming that the stimuli I have used do influence the number of leucocytes, the result must be considerably modified by the physiological variations, and it would be necessary to eliminate the latter to arrive at the effect of the stimulus. But it has been shown that the two curves are so similar as to be practically identical, and therefore I think that the stimuli employed have no effect on the number of leucocytes in the peripheral blood—the variations recorded in the experiments being nothing more than the fluctuations of physiological rest. Kobryner's work confirms this, for he has shown that food, fluid, movement, etc., do not influence either the total leucocytic curve or its phases. Consequently I think that there is neither a "digestion leucocytosis" nor a "digestion leucopenia," the results recorded as such in the literature on haemoclasis being simply the expression of the phase of the normal curve at the time the test is done—a descending phase being registered as a leucopenia and an ascending one as a leucocytosis.

Conclusions.

1. Widal's haemoclasic test for liver function lacks a theoretical basis, and in practice is of no value in the diagnosis of hepatic insufficiency.

2. During physiological rest the number of leucocytes in the peripheral blood is subject to considerable and rapid fluctuations, though there are phases in which a state of equilibrium exists.

3. There is no evidence that the ingestion of milk, casein, butter-fat, and distilled water in certain quantities, or the local application of cold, influences the leucocytic content of the peripheral capillary blood, the oscillations following these stimuli being the same as the physiological variations during rest.

4. The phenomena of "digestion leucocytosis" and "digestion leucopenia" described in connexion with the

haemoclasic test are simply physiological variations and not the response to ingestion of foodstuffs.

5. The conflicting conclusions as to the value of the haemoclasic test arise from a failure to recognize that normally the leucocytic content is in a state of flux, and consequently that a single count made before the test does not represent a state of equilibrium.

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ACTINOMYCOSIS OF THE PLEURA.

AN ACCOUNT OF TWO CASES, WITH PATHOLOGICAL FINDINGS,

BY

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THE two cases here recorded differ considerably in type, but the clinical features are worthy of study, as also are certain considerations which the cases raise as to the vexed question of the etiology of this disease.

CASE I.

A woman, aged 20, an assistant in a drapery shop, had always lived in Newcastle. In October, 1921, she complained of pains in the back and general malaise, and about a fortnight later was laid up with "pleurisy" on the left side and pain in the left shoulder. She appeared to get over this, but, not gaining strength, reported to her doctor late in November, and was found by him to have a coarse pericardial friction rub over the base of the heart. She was seen in consultation with Dr. S. Worthington on December 10th, on account of the development of a lump above the left breast. She was pale and somewhat hectic, had a temperature of 100° F., and a pulse of 120. There was an oval swelling about half the size of a hen's egg in relation to the anterior end of the second left rib and second interspace. The swelling was tender, elastic in consistence, not red and not hot; the skin could be moved freely over it, but it was fixed to the deeper structures. There was no pulsation, nor impulse on coughing. Immediately under the swelling there was some diminution of the breath sounds and of the vocal resonance and fremitus, otherwise there were no abnormal signs in the lungs. At the right border of the sternum, in the second and third interspaces, a well marked systolic bruit was audible, the characters of which suggested that it was exocardial. The heart appeared normal in size and position, and there were no other murmurs. Nothing abnormal was found in the other organs.

FIG. 1.—Early stage.

FIG. 2.—Later stage.

No definite diagnosis was made and the case was admitted to hospital. Slight fever continued, and the lump gradually increased in size. At the end of a fortnight the lump had doubled in size, and the skin was becoming stretched over it and red in places. The swelling was then explored with a hypodermic syringe, and a little blood withdrawn, but no pus. The site of the needle puncture failed to heal, and within forty-eight hours began to discharge typical oily pus, containing opaque greyish-white granules. Stained specimens revealed the branching mycelia of actinomyces, and there was also definite evidence of clubbing. No other organisms were found, and pure cultures were obtained anaerobically in 2 per cent. glucose agar, growth being obtained in all of six tubes inoculated. The organism also showed feeble powers of growth under aerobic conditions, two colonies developing on the surface of one of two agar slopes inoculated. A few spores occurred in the stab cultures on the fourteenth day.

The swelling continued to increase rapidly in size, and discharging sinuses appeared in several places; the breast became invaded, and the appearance shown in the photographs was gradually assumed. Surgical intervention was discussed, but abandoned by the surgeons in view of the evidence of involvement of the mediastinal tissues. As alternatives various lines of treatment were followed, namely—

1. Ionization of the growth with potassium iodide.
2. An autogenous vaccine of the streptothrix was prepared from the discharge and administered in increasing doses for many weeks.
3. Potassium iodide was given by the mouth in large doses for several months: 60 grains three times daily were taken for a week at a time, followed by four days without the drug. No signs of iodism appeared at any time.
4. In place of ionization a long course of *x*-ray treatment was given. In all eighty-one applications were given with a 10-milliampère Coolidge tube and a 2 mm. aluminium filter, the tube distance being 12 inches.

None of these measures had any appreciable effect, the local condition remaining more or less stationary while general cachexia and emaciation advanced. Considerable glandular enlargement appeared in the left axilla, and two additional swellings appeared, one behind the right ear and one at the lower end of the left scapula. The former burst and discharged pus and then healed; no actinomyces was obtained from the pus. The latter also broke down, and continued to discharge a small amount of pus. Gradually dullness developed over the greater part of the left lung and numerous crepitations were heard; immediately beneath the growth breath sounds were absent. For several months remittent pyrexia of moderate degree continued, and by January, 1923, the patient's condition was desperate. The spleen became enlarged, the anterior edge descending a handbreadth below the costal margin; the lower edge of the liver reached to the umbilicus. The urine contained a considerable amount of albumin, and there was intermittent diarrhoea. Cough, which had been almost entirely absent, increased a little, but there was very little sputum throughout.

Blood films showed secondary anaemia and a slight polymorphonuclear leucocytosis. Oedema of the left upper limb developed, and death occurred on March 8th, 1923.

Post-mortem Examination, March 9th, 1923 (Dr. A. F. Bernard Shaw).

On reflection of the skin containing the growth a wide area of suppuration was found extending from the left breast, the pus being green and odourless; the suppuration involved all the tissues of the chest wall, and the periosteum of the ribs was stripped and the bones eroded; the necrotic tissues were soft and ochre-yellow. There was gelatinous oedema of the anterior mediastinum, and the pericardial sac was obliterated by adhesions, which were not very dense. The left pleural sac contained abundant loculi of greenish pus, and the rest of the sac was obliterated by dense adhesions. The left lung was collapsed and airless, but contained no actinomycotic lesions. The glands at the root of the right lung were congested, and there was a small area of invasion of the hilus of this lung by the actinomycotic process. No other evidence of actinomycosis was found throughout the body. Though the liver and spleen were markedly enlarged, neither these organs, nor the heart or kidneys, showed naked-eye evidence of amyloid change, and the iodine test for amyloid degeneration was everywhere negative. Smears from the pus in the left pleura showed numerous streptothrix colonies.

CASE II.

A shipyard labourer, aged 42, was admitted to the Royal Victoria Infirmary complaining of "abscesses" over the right lower ribs, which had been present for three months.

History.—The patient stated that he had an attack of pleurisy six months before admission and that he had never been well since. At first he was off work for five weeks, and on attempting to start again he developed a second attack of pleurisy. Some time after this second attack the skin condition commenced with

what he described as a small blister. He had a troublesome cough at night, but said that he had been troubled with his chest for about sixteen years since an attack of pneumonia.

Condition on Examination.—The patient was very thin, with a sallow complexion, and the fingers were clubbed. A little to the right of the lower end of the sternum, and extending from the level of the fourth rib to the seventh right intercostal space, was a raised, livid patch of very firm consistency. The surface was glazed and somewhat nodular, with here and there small circular points of superficial necrosis from which a little thin yellow pus could be squeezed. A similar but smaller lesion was situated over the eighth right intercostal space in the mammary line, and a larger lesion measuring 13 by 6 cm. extended over the right costal margin.

Right Lung.—Anteriorly the lung was emphysematous. Posteriorly there was dullness on percussion from opposite the fourth dorsal vertebra and increasing towards the base of the lung, where the note was quite flat. There was diminished air entry over an area corresponding to the area of dullness, with no breath sounds over the extreme base; vocal resonance was greatly diminished. The left lung was generally emphysematous but otherwise normal. Exploration of the right pleura revealed no fluid until a fortnight before death, when some purulent blood-stained fluid was drawn off from the right pleural sac. At first repeated examinations of the pus from the skin nodules showed nothing, but about a fortnight after admission streptothrix filaments, staining poorly, were discovered. No granules were found in the discharge at any time.

Progress.—From 90 to 100 grains of potassium iodide were given daily, and the skin lesions were treated at first with antiseptic dressings and later painted with Gram's solution frequently during the day, but little or no beneficial effect was to be noticed. A month after admission to hospital the patient developed acute pleurisy over the base of the left lung. Later he began to cough up a considerable amount of green purulent expectoration, but no streptothrix could be found on examination of the sputum at any time. The progress of the case was steadily downhill—a swinging temperature developed, the abdomen became distended and tense, there was considerable enlargement of the inferior epigastric vein on the right side, coma set in, and the patient died three months after admission to hospital.

Post-mortem Examination (Dr. A. F. Bernard Shaw). ✓

There was dense thickening of the right pleura, which, on being separated, revealed slimy green pus which had perforated the diaphragm, passed behind it and spread along the spine. The right lung was collapsed and showed moderately large bronchiectatic cavities. The bodies of the ninth and tenth dorsal vertebrae were covered with pus and there was some superficial erosion of the bone. There was a pyaemic abscess in the liver, two abscesses in the spleen, two abscesses in the right kidney, and one in the left kidney. Under the left cerebral cortex five abscesses containing slimy green pus were found and one abscess under the right cortex. The right occipital lobe was destroyed by a similar abscess. Streptothrix in thread form was found in all these abscesses, and was especially abundant and characteristic in the pus from the brain.

Diagnosis.

It is clearly important to bear in mind the possibility of this disease in the case of a lump of obscure origin in any part of the chest wall. The appearances may suggest tuberculosis of a rib, sarcoma, gumma, etc., and it may be possible to decide the diagnosis by exploratory puncture, followed by microscopical examination or culture. In our first case the typical granules were numerous and the organism was easily obtained and isolated in pure culture; in the second case no granules were seen, and the organism was only found after many examinations, and never in the sputum, though the lung lesion was extensive. This difficulty in isolating the organism has been encountered by many observers, some of whom would exclude from the category of actinomycosis any case in which granules are absent. While there are no doubt different types of mycelial infection, the presence of branching filaments in a typical lesion appears to us to justify the diagnosis from a clinical point of view.

Mode of Infection.

Evidence is accumulating against the view, originally put forward by Bostroem, that the infection is conveyed to man from vegetable sources. Such a mode of infection cannot be considered as likely in either of our cases. One patient was a shipyard labourer; he had not handled grain or straw, nor worked at any time on a ship which had carried a grain cargo. The other was an assistant in a drapery shop, who had never lived outside Newcastle. The type of organism present in this latter case corresponds to that described by Wolff and Israel and by Homer Wright.[1] The recent observations by Colebrook[2] lend fresh support to the work of Wolff and Israel. Colebrook points out that a truly anaerobic organism, such as is found in most cases of human actinomycosis, has not been recovered from any vegetable source, and in view of the slight viability of the human organism its survival upon vegetable matter is unlikely. He impregnated sterile oats with a fluid culture of the human organism and introduced it into the pleural and peritoneal cavities of rabbits; in no instance was actinomycotic infection established. He favours the view that so-called *Actinomyces bovis* is a frequent inhabitant of the alimentary tract of man, and may be carried into the tissues in certain unknown circumstances. He has isolated Gram-positive filaments resembling actinomyces from carious teeth, and refers to similar observations by Lord.[3] In view of these observations it would appear desirable to investigate systematically the bacterial flora of the mouth in cases of actinomycosis in any part of the body.

The pathway of entry of the organism also remains uncertain. Actinomycosis of the lung is a well recognized affection, and in the second of our cases infection could be explained by inhalation; in the first case, however, no pulmonary lesion at all was found at autopsy, and the disease remained throughout limited to the pleura and adjacent mediastinal tissues. Invasion from the skin is certainly not the explanation in this case, as the skin in the early stages was quite normal in appearance and freely movable over the underlying abscess. Inhalation into the main bronchi with infection of the mediastinal glands and subsequent lymphatic spread to the pleura is unlikely, as there was no trace of any lesion in the bronchi, and the only mediastinal gland involved was a small one on the side opposite to the pleural lesion. Finally, the possibility exists of infection by way of the oesophagus, a view put forward by Poncet and strongly supported by Cope.[4] In a considerable number of the reported thoracic cases pulmonary symptoms have been late in onset and have been preceded by the appearance of the lesion in the chest wall. The theory is that the mediastinum is infected from the oesophagus, and thence the disease spreads directly to the pleura, usually in the lower part of the chest. In these cases, therefore, extensive disease is usually to be found in the mediastinum, but this was not so in our first case, and it appears to us very doubtful if oesophageal infection can be held to account for the pleural lesion in this case. The suggestion, therefore, is that the pleura was infected by the blood stream from an unknown primary focus, probably in the mouth or other part of the alimentary canal.

We would refer the reader to a useful summary of the present evidence regarding the etiology of the disease by Warwick.[5]

Treatment.

Our experience of treatment in these two cases was that neither potassium iodide, vaccine, nor *x* rays was of any avail. In the case in which the disease was limited to the pleura and adjacent mediastinum it is possible that more radical surgical treatment, in combination with the other measures, might have been effective.

In a remarkable case recorded by Bigland and Sergeant,[6] in which the pericardium and right pleura were infected, recovery followed the following treatment: (1) irrigation of the right pleura and pericardium with a solution containing collosol iodine; (2) potassium iodide, 25 grains three times daily by mouth, later changed to iodopin, 1 drachm three times daily; (3) collosol iodine intravenously. In another case of pulmonary actinomycosis recorded by Malcolm,[7] cure was obtained by incision, scraping and removal of ribs, potassium iodide by mouth, and finally vaccine treatment.

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TORSION OF THE GALL BLADDER.

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TORSION of the gall bladder is a very rare condition, and in consequence I report the following case.

A married woman, aged 54, with six children, whilst taking tea on February 17th, was seized with severe pain in the right upper abdomen. She vomited frequently bright green bile, and the pain and vomiting continued until the morning of February 19th, when she was admitted to the London Hospital. She had not previously had similar pain, nor flatulent dyspepsia, jaundice, or any abdominal condition, although, until seven years ago, she was alleged to have suffered from periodic "bilious attacks," consisting of headache, slight sickness, but no pain, lasting for about a day. She was always constipated.

The temperature on admission was 99°, pulse 94, and respirations 24. The abdomen was slightly distended, and did not move well on respiration. Tenderness and rigidity of the right upper abdomen were pronounced, and a rounded lump, suggestive of a distended gall bladder, could be felt. Acute cholecystitis with a gall stone in Hartmann's pouch obstructing the cystic duct was the clinical diagnosis.

Operation.—A right upper rectus incision was made and the rectus muscle retracted outwards. As soon as the peritoneal cavity was opened some serous fluid escaped and a black distended gall bladder presented. It was about 3½ in. long, the shape of a thick sausage, with the concavity directed upwards and forwards. The peritoneum completely covered it and attached its proximal end to the liver by a mesentery, which also contained the cystic duct. A cystico-duodenal fold ran from the under surface of the proximal end (the cystic duct end) to the duodenum. The gall bladder had rotated once completely on the cystic duct from right to left. The gall bladder was extremely mobile, and its wall in the region of Hartmann's pouch so thickened as to suggest to the palpating fingers a stone therein. I removed the gall bladder and explored the biliary passages, but found nothing else abnormal.

The gall bladder contained blood mixed with a little bile, but no stones. The wall was greatly thickened by haemorrhage, especially at the proximal end, where it measured a quarter to a third of an inch. The patient made an uninterrupted recovery.

I am indebted to Sir Hugh Rigby for permission to publish this case.

Relation of the Peritoneum to the Gall Bladder.

The gall bladder lies in a groove on the under surface of the liver between the right and quadrate lobes. Generally the postero-inferior surface and fundus are covered by peritoneum, and the antero-superior surface is attached to the liver by fibrous tissues. Sometimes the gall bladder is crossed by a bridge of liver tissue, and may even be entirely embedded. Rarely it is completely surrounded by peritoneum and attached to the liver by a mesentery. Lett quotes Brewer as finding this condition in 5 out of 100 dissections of the gall bladder and ducts, while Mr. A. J. Walton observed it in 7 of his cases at operation. Very rarely this mesentery does not extend beyond the proximal end (" neck ") of the gall bladder, so that nearly the whole of the latter is entirely unconnected with the liver. In such cases the gall bladder is extraordinarily mobile and liable to torsion. It is suggested by Mr. Walton that a mesentery is more common in cases of virginal ptosis. Not infrequently, especially in cases of ptosis, a peritoneal fold passes from the inferior surface of the gall bladder to the colon or duodenum or both. It is known as the cysticocolic or duodenal fold, and is a continuation of the gastrohepatic omentum. It was present in three of Brewer's five cases of gall bladders with mesenteries, and also in the case of torsion here recorded.

Previous Cases of Torsion.

Wendel in 1898 described the case of a woman, aged 23, who had torsion of the gall bladder, in which there were stones, whilst other stones had escaped through a perforation and were lying free in the surrounding abscess cavity. The cystic duct had twisted many times, but there was no gangrene of the gall bladder, presumably on account of the many adhesions present.

In 1909 Lett recorded a case in which the patient, aged 72, was found to have her cystic duct twisted four half-turns, but there were no stones present. She died twelve hours after operation.

In the *Medical Annual* of 1913, in the section on volvulus of the gall bladder, Moynihan and Upcott quote Kubig, who in 1912 published his own case, found *post mortem*, and the records of three others found in the literature—namely, those of Mühsam, Mayer, and Fischer. These four cases occurred in elderly women. The gall bladder had rotated once or twice completely from right to left, was kidney-shaped, full of blood, and its wall was greatly thickened. In one of the four gall stones were present.

Hansen's case in 1921 was that of a woman, aged 79, who had an hour-glass gall bladder; whilst in 1921 Irwin published the case of a woman, aged 34, who on operation was found to have a volvulus, there being one complete twist in the proximal part of the gall bladder itself and not the cystic duct. No stones were present and she recovered.

Jonas operated on a woman, aged 67, in 1923, and found two half-twists of the cystic duct and stones in the gall bladder. She recovered.

Summary.

In all the recorded cases the patients were women and the majority of advanced age. In just over a quarter (3 out of 11) stones were present.

The physical signs and symptoms were practically the same in nearly every case: sudden onset of severe pain in the right upper abdomen, vomiting, slight abdominal distension, rigidity most marked in the right hypochondrium, and a tender lump in the position of the gall bladder. In no instance was a correct diagnosis made, the condition generally being considered acute cholecystitis with a stone obstructing the cystic duct.

Although in nearly all cases the gall bladder was strangulated and gangrene inevitable, apparently (for example, Wendel's case) it may obtain a sufficient blood supply through adhesions to prevent this.

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OTITIC INTRACRANIAL INFECTION.

BY

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As a sequel to otorrhoea, with or without mastoid involvement, the presence of pus in the cerebro-spinal fluid is a condition from which recovery is unfortunately not so common as to be uninteresting; and when the surgeon is not only faced with obvious meningitis, but also, in obedience to strong indications of brain abscess, is obliged to explore cerebrum and cerebellum, the patient's prospects are certainly not improved.

Recently at a hospital of 120 beds (the London Temperance) I had simultaneously under my care two cases of this type; and each made a quite unexpected recovery. The following are brief reports.

CASE I.

A girl, aged 17, had had a discharge from the right ear for two years. In August, 1924, a radical mastoid operation (right) was performed. A month later she complained of giddiness and intense frontal headache; right external strabismus was present, with spontaneous nystagmus of the first degree on deviation to the left; there was indefinite thickening over the right jugular vein, and oedema of both optic discs. At first rigors were present; later the temperature, pulse, and respirations fell to subnormal. Pus was found in the lumbar cerebro-spinal fluid.

Operation.—The dura mater was widely exposed, and found to be under slight tension; the wall of the lateral sinus was rough and unhealthy. The sinus was explored with a needle, but only normal blood was extracted. At a second operation, two days later, the dura was very tense and quite devoid of pulsation; first the cerebrum, and then the cerebellum, was explored for pus—without success.

Post-operative History.—Spasticity of the left psoas, adductors, and hamstrings supervened and persisted for a month, then gradually cleared. Hernia cerebri slowly subsided. The intense headache was controlled by heroic doses of morphine and heroin. The patient was discharged well.

CASE II.

A girl, aged 3, in November, 1924, underwent myringotomy for right acute otitis media. In January, 1925, she was admitted to hospital suffering from right mastoiditis, and a cortical mastoid operation was performed. Two days later she was isolated for pertussis. Four days later still the head was retracted, and there were convulsions of the right limbs, with paresis of the right side of the face and complete paralysis of the left arm. Pus was found in the lumbar cerebro-spinal fluid.

Operation.—Chloroform was the only anaesthetic employed, ether being contraindicated on account of cough. The dura mater was widely exposed, and found under slight tension. The wall of the sigmoid sinus was healthy. At a second operation, two days later, the dura was very tense, there was no pulsation whatever. Both

the cerebrum and cerebellum were fruitlessly explored for pus. The child appeared to be moribund, and required only a very little anaesthetic.

After-History.—The hernia cerebri gradually subsided, and the patient made a complete and uninterrupted recovery.

I would emphasize the value of the two-stage operation. It often happens, as in these two cases, that while it is manifestly the surgeon's duty to open the cranium it is not so obvious what further steps should be taken. It may be necessary to drain the meninges, or turn clot out of the lateral sinus, or explore the brain. Therefore it is often wise, in the first instance, merely to expose the dura widely. This drains any local extradural abscess; the relief of tension helps the patient; and, since the dura is more resistant to infection than is bone, no harm has been done. If there is no clear indication to proceed further, the patient is returned to bed. Except in the rare cases in which the condition clears up, apparently as a result of the simple decompression, the second stage is undertaken one or two days later. By now there is usually more exact evidence of the lesion to be dealt with—both clinical evidence and evidence from the appearances of the exposed area. But by now, also, the patient is more ill, and would possibly not stand the prolonged operation of removing bone. This, however, has been obviated by anticipation, and the exploration of brain or sinus only occupies a few minutes.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

PROLAPSE OF GUT *DISTAL* TO A COLOSTOMY.

In performing colostomy, after finding the sigmoid colon, the surgeon gently pulls down the loose bowel until the descending colon is nearly taut, so that any loose folds of sigmoid are not left just above the opening. The interest of the case here recorded lies in the fact that the sigmoid distal to the colostomy made in the recognized fashion prolapsed 9 inches.

W. M., male, aged 75 years, admitted to the Paddington Infirmary on January 26th, 1925, stated that colostomy had been performed twenty years previously for cancer of the bowel. There was a left iliac colostomy through which 9 inches of gut prolapsed. The abdomen was tender and rigid, but replacement of the prolapsed gut caused these signs to disappear. The patient suffered also from capillary bronchitis. Death occurred in fifteen hours.

Necropsy.

In addition to advanced bronchitis in both lungs, chronic interstitial nephritis and generalized arterio-sclerosis were present. The colostomy had been performed at the lower end of the descending colon. The gut for 16 inches distal to the opening was oedematous, congested, and dilated. The remainder of the large gut was contracted and empty. There was no sign of any malignant growth in the abdominal cavity, but there was well marked diverticulitis of the pelvic colon; some of the diverticula were minute, containing nothing but mucus, but one, resembling a normal appendix in size and length, contained a small amount of faecal matter. These observations were confirmed on microscopical examination. The appearance did not suggest that any portion of the gut had been removed at the previous operation.

We wish to express our thanks to Dr. Bendle, medical superintendent of the Paddington Infirmary, for permission to record this case.

It would appear that this case of diverticulitis of the colon had been regarded as an inoperable carcinoma. Retroperistalsis depends on a state of tension. Retroperistaltic waves once started may be augmented by an increase of internal pressure (Cannon). The fact that at the necropsy all the large gut except the 16 inches distal to the colostomy was empty suggests that the tension of this part of the gut caused by the presence of faeces initiated a retroperistaltic wave, which was sufficiently strong to cause prolapse of a portion of mucosa, and that the lumen of the gut was thereby obstructed, causing a further rise in tension which led to a greater degree of prolapse. Such a complication is obviously prevented by the frequent periodic flushing out of the segment of the bowel distal to a colostomy opening.

C. M. GREENSLADE, M.B., F.R.C.S.
London, W. F. J. S. HALL, M.B., M.R.C.S.

TREATMENT OF DIABETES BY RAW FRESH GLAND (PANCREAS).

I DECIDED to try the treatment of diabetes by raw fresh gland in a lady of 67, who had been on a strict diet for six weeks without any appreciable improvement. The percentage of sugar present before gland treatment was 2.65; after four days' trial sugar had completely disappeared. I then recommended gland ingestion every other day for a week, when the urine showed a return of the glycosuria, but only 0.22 per cent. She returned to her original daily dose, when again, after a few days, the urine was free of sugar. She declares herself wonderfully better, her abnormal thirst and appetite having practically disappeared.

From experience I think it unsafe to be too dogmatic on any line of treatment for diabetes, as, despite recent research, the etiology and pathology of some cases are most puzzling and they refuse to respond to any form of treatment.

HELENA POMEROY KELLY, M.B., Ch.B.
Wolverhampton.

MRS. K. aged 50, who had been treated for diabetes by dieting since January last, appeared from the history to have suffered from diabetes for at least two years. Under treatment some symptoms subsided, but the specific gravity of the urine was never reduced below 1030; it was usually considerably higher, and the percentage of sugar was only reduced to 2.5. The patient objected to trying insulin. Raw pancreas was started on March 17th (as recommended by Dr. Hollins, BRITISH MEDICAL JOURNAL, March 14th, p. 503), and on March 21st the urinary sugar was reduced and the specific gravity of the urine was 1025. By April 24th the urine was free of sugar and the specific gravity 1020. The patient put on one pound in weight, and all symptoms disappeared. Apart from the addition of the pancreas, which was taken five days a week, no change was made in the diet.

Cardiff. CONSTANCE L. GRIFFITHS.

X RAYS IN THE TREATMENT OF WHOOPING-COUGH.

DR. H. I. BOWDITCH, in the *Journal of the American Medical Association* (vol. i, 1924, p. 1422), gave an account of the treatment of 300 cases of whooping-cough by *x* rays at the Boston Floating Hospital. References to the work of Dr. Bowditch and his colleagues appeared in the *Epitome*, November 29th, 1924 (para. 424), and December 20th, 1924 (para. 491). A previous article on this subject was published by Dr. Bowditch in the *Boston Medical and Surgical Journal* of March 8th, 1923. Acting on the suggestion, but adopting a rather simpler technique, I have used the method in nine consecutive cases of whooping-cough during the past three months, and my experience may be summarized as follows.

1. The cases were all well established examples of uncomplicated whooping-cough, and four were very severe. The ages of the patients ranged from 1 year and 9 months to 55 years, and the duration of the attack from ten days to four months.

2. The dose of *x* rays varied with the age of the patient from 1/4 to 3/4 pastille dose, using in each case a suitable aluminium filter and a tube of equivalent spark-gap of 8 inches. In each case the dose was directed to the interscapular area from behind, this being the nearest point of approach to the root of the lungs, where enlargement of the lymphatic glands occurs in this disease. Two doses were given, with an interval of one week, in all except three cases, in which one dose only was given. The patients received no other treatment.

3. In all the nine cases so treated the cough ceased in less than a fortnight, and in no case did it recur; the cough at night was the first to be stopped.

The rationale of the method is explained by Dr. Bowditch, and I have personally confirmed the existence of enlarged glands at the root of the lungs. I do not believe that any bad sequelae are likely with these small doses, which have been employed in a large number of cases of early tuberculous adenitis; this invariably clears up under similar but

more prolonged treatment without unpleasant results. I venture to draw attention to the method in the hope that it may be more extensively practised in a disease in which other methods of treatment have been generally unsatisfactory. The relief which followed its use in these cases was extraordinary. If the good results are confirmed by more extensive trial we appear to have at our disposal a method of treating whooping-cough which will cut short its distressing symptoms, prevent the onset of many complications, and materially reduce its mortality.

Glastonbury, Somerset. J. W. J. WILLCOX, M.B.Lond.

POISONING BY EUCALYPTUS OIL.

THE following case of poisoning by eucalyptus oil, in which alarming symptoms arose, may be of interest to readers. Other cases have been recorded in the BRITISH MEDICAL JOURNAL (1906, i, pp. 558, 1020, 1085).

A boy, aged 16, was recovering from measles when he was given by mistake half an ounce of eucalyptus oil. He swallowed the draught from the medicine glass without looking at it, and immediately said, "You have given me eucalyptus instead of my medicine." He felt some burning in the mouth and tried to cough the oil up, without success. In two or three minutes he suddenly became faint, and, according to the parents' account, was quite unconscious. On arrival ten minutes later I found the patient much collapsed, almost pulseless, and completely unconscious. The conjunctival reflex was nearly absent, and the breathing stertorous. With difficulty I got a little mustard and water down, but as there was no proper reflex action of swallowing I desisted. However, the boy vomited twice; whether this was due to the poison or the mustard I cannot say. His colour and pulse improved, but as I was not satisfied I washed out the stomach three or four times with the stomach tube. Three hours later the bowels acted involuntarily, but the patient remained comatose for another hour, when coughing commenced and the conjunctival reflex became brisk. Two hours later still, speech and recognition of relatives had returned, and the subsequent recovery was uneventful. The patient told me that he remembered nothing of what happened from the time of his feeling faint at 11 a.m. until about 5 p.m. On recovery of consciousness he complained only of thirst; there was no abdominal uneasiness. The symptoms therefore were those rather of a narcotic poison than of an irritant.

The poisonous nature of such a common household remedy is probably not widely known.

Horwich, near Bolton. J. S. SEWELL, M.D.Ed.

SACRALIZATION OF FIFTH LUMBAR VERTEBRA WITH PRESSURE ON LUMBAR PLEXUS.

THE following case, of a condition which I believe to be rare, seems worthy of record. I am indebted to Mr. A. M. Sinclair, honorary surgeon to the Victoria Hospital, Burnley, for permission to publish these notes.

A man, aged 30, sustained an injury in March, 1924, to the lumbar region of the back. A week after the accident the patient was completely free from pain. On returning to light work, five weeks later, he noticed that his back was easily fatigued, and towards the end of April, 1924, he began to suffer pain in his back over the site of injury. He experienced increasing weakness in the right leg, and later on pain in it on exertion. About November, 1924, he found he could not completely extend his right knee, the attempt to do so causing pain in the back, shooting down to the right heel.

When examined in March, 1925, some flaccidity and wasting of the muscles of the right thigh and right calf (? due mainly to disuse) and considerable weakness of the right quadriceps femoris were present. There was limitation of all movements at the hip-joint, in particular of those of extension and internal rotation, and all movements at that joint caused pain over the right posterior superior iliac spine. The knee-joint could not be completely extended, and attempts to do so produced pain over the right posterior superior iliac spine, shooting down the back of the right leg to the heel. There was evidence of interference with sensory filaments in a slight loss of the sense of superficial touch, marked loss of pain sense over the anterior aspect of the right thigh extending upwards as far as Poupart's ligament, and also considerable loss of deep muscular sensibility in the right calf. No variation in the reflexes could be made out. The Wassermann reaction was negative.

The skiagram disclosed a shadow, suggesting bone in density, extending from the lower portion of the right transverse process of the fifth lumbar vertebra downwards to the first piece of the sacrum, and outwards, rather more vaguely, to the iliac crest a short distance above the posterior superior iliac spine. A homologous but rudimentary process was present on the left side.

In March, 1925, the patient was operated on at the Victoria Hospital, Burnley. On separating the muscles through a posterior incision a small bony process was found tapering downwards and outwards from the lower portion of the right transverse process of the fifth lumbar vertebra, and being prolonged as a band of firm fibrous tissue to the iliac crest. Below it was connected with the first piece of the sacrum. The fibrous band was cut, and the bone removed flush with the transverse process of the fourth lumbar vertebra.

After the pain immediately subsequent to the operation had subsided the patient found that he could completely extend his knee without pain. When the operation wound had healed, all movements at the hip-joint were found to be normal and painless, and also there was definite evidence of returning cutaneous sensibility. On April 18th the patient was discharged from hospital, all symptoms of the condition having disappeared.

R. B. HENDERSON,
House-Surgeon, Victoria Hospital, Burnley.

SECONDARY CARCINOMA TREATED WITH DEEP *X* RAYS.

ALTHOUGH the patient in the following case eventually died, the effect of deep *x*-ray therapy was in certain respects so favourable that it appears worth while to record the facts.

A lady, aged 48, in the spring of 1921 had a small nodule just above the clavicle on the right side. The left breast had been excised five years earlier for carcinoma. The right arm was slightly swollen. The patient was of a very nervous temperament with dilatation of the left pupil and a suggestion of exophthalmos; the pulse rate was frequently accelerated, and her condition resembled in certain respects the thyroid type. By the autumn of the same year there was considerable glandular involvement in both supraclavicular regions, especially the left; the glands were very hard and adherent to the cervical tissues.

The surgeon who had operated in the first instance pronounced the condition inoperable, and she was transferred to Frankfurt, where she was placed in the City Hospital, under the care of Professor Schmieden. Though the condition was not considered suitable for irradiation, in view of the extent of the glandular involvement and the swelling and neuralgic pains down the arm, she received irradiation of three hours on each side of the chest on October 28th, 1921. First field (left breast and axilla): Distance 80 cm.; dose 110 per cent.; filter 0.5 mm. of zinc. Second field (right supraclavicular area from front): Distance 40 cm.; dose 100 per cent.; filter 0.5 mm. of zinc. Third field (right supraclavicular area from behind): Distance 40 cm.; dose 100 per cent.; filter 0.5 mm. of zinc.

Within a month from the date of treatment a distinct difference in the size of the glands was observable, an improvement that still held at the end of five months. Marked improvement was observed in the general health; the condition, however, could not be regarded as cured, pleuritic friction being audible between the shoulder-blades. Blood examination showed: Haemoglobin 100 per cent.; red blood cells 7,400,000, white blood cells 10,600 per c.mm. Anaemia of the ordinary hyperplastic type was therefore present. *X*-ray examination gave no evidence of intrathoracic involvement.

She paid a second visit to Frankfurt on April 10th, 1922. For about six weeks prior to this visit the supraclavicular glands had shown a tendency to increase. Professor Schmieden found her general condition improved. *X*-ray examination of the thorax revealed a long narrow mediastinal band, but screening showed the retrocardial space free. Several bronchial glands appeared enlarged, which may explain pains she experienced in the chest. The mediastinum, however, being free, was treated with high *x*-ray doses. The left thorax, axilla, and clavicular area were treated at 70 cm. and 80 cm. distance by two fields, giving 50 per cent. erythema skin dose each, the filter being 0.5 mm. of zinc, the milliamperage 3, the spark-gap 44 cm., and the time 115 minutes with each tube. This was immediately followed by a 70 per cent. dose at 50 cm. distance, given obliquely from the left scapula, the irradiation field being 10 by 15 cm. Five days afterwards the right clavicular region was also irradiated—moderated, owing to the state of the patient, to a 90 per cent. dose at 50 cm. distance with a field of 10 by 15 cm.

A third visit was paid in August, 1922. The left gland had markedly decreased and flattened out, the right glands had increased and even slightly involved the skin—a striking commentary upon the relative underdosage on the right side in April. The general condition of the patient was poor, although Dr. Holfelder, who had charge of the patient while she was in Frankfurt, reported that she stood the journey fairly well. The percussion note was damped in the left posterior thorax, with pleuritic friction; there was pain, and a diagnosis of pleural metastases was made. The supraclavicular and infraclavicular regions were treated with 100 per cent. erythema skin dose at a distance of 80 cm. This was followed by almost immediate retrogression of the glands in the right supraclavicular area.

During the ensuing year the general condition sank. Constipation remained a marked feature; she became thinner. The blood sank to 55 per cent. of the colour index. The glands involved the skin above and below the clavicles. The pulse rate rose to 120 to 140. Arsenic and radium made little difference.

The facts of the case were of interest, notwithstanding the negative outcome. It was over seven years from the date of the primary operation that the patient succumbed, and, giving a year for the primary growth, the illness was of over eight years' duration, with a clear interval of five years. In October, 1921, she was so ill that *x*-ray treatment was almost refused. The opinion of the observers, both in London and on the Continent, was that the first and second irradiations exerted a definitely retarding effect on the growth of the cervical glands. The advantages of the treatment lay therein, in a partial relief of pain, and in the belief that everything possible was being done for her.

Glasgow. ARTHUR TURNBULL.

FRIEZE IN FAÇADE OF PATHOLOGICO-SURGICAL SECTION OF THE POLICLINIC IN ROME: LISTER.

LISTER. THE INVESTIGATOR AND SURGEON.

BY

SIR WILLIAM WATSON CHEYNE, BT., F.R.C.S., F.R.S.

THE first Lister Memorial Lecture, established under the International Lister Memorial Fund, was delivered by Sir William Watson Cheyne, Bt., before the Royal College of Surgeons of England on May 14th. The full text, with an appendix, will shortly be published by Messrs. Longmans, Green and Co. In the course of his lecture Sir William Watson Cheyne said:

The story that I have to tell, though it goes back for just sixty years, is still full of vitality; it is a fascinating tale, far exceeding in interest the most exciting detective story ever written. And it is a true story. It is the story of a fight against a series of diseases—the infective or septic diseases of wounds. Until Lister's time any wound of the skin, whether the result of an accident or of an operation performed by the surgeon, involved a very great risk to the patient of serious illnesses. A surgical ward in a hospital was a place in which most of the patients were visibly ill, with flushed faces, parched lips, delirium, severe pain, etc., and many of them were evidently on the verge of death; the wards were pervaded with a peculiar mawkish odour which was very trying to newcomers. Lister's first introduction to septic diseases was when he became a dresser in the surgical wards at University College Hospital, London. I think that his very first case had been attacked by phagedaenic gangrene, one of the most terrible of these septic diseases. That and other similar cases impressed him so greatly that he never forgot them, and always felt that no study was more urgent or might be more fruitful than the attempt to find out the cause.

When Lister became professor of surgery in Glasgow and was appointed one of the surgeons at the Glasgow Royal Infirmary, late in 1861, he had done excellent experimental work on the early stages of inflammation, coagulation of blood, etc.—work which was to be of the greatest value to him in future and for which he had been elected, at the early age of 33, a Fellow of the Royal Society. Lister made an extensive experiment in his wards with ordinary cleanliness, but without success, and one can imagine his depression when he found that the best methods he could think of did not help him at all, and that pyaemia and all the other septic troubles dogged his footsteps and rendered his best work nugatory.

But it so happened, though Lister did not then know it, that the cause of putrefaction was being revealed about the time that he was appointed professor of surgery in Glasgow. About 1860 Pasteur not only closed the proof against the spontaneous generation of yeast cells, but also opened up a new and extremely vital line of research by pointing out that other fermentations than the vinous, such as the butyric and the putrefactive, were also dependent on living organisms. Pasteur himself does not seem to have had at the time any idea of the importance of this part of his investigations, and as far as I can ascertain only three men thoroughly realized it, or at any rate made any attempt to utilize the knowledge, within the next few years. These men were Jules Lemaire, Spencer Wells, and Joseph Lister.

Jules Lemaire was, I fancy, of the type of the delightful old learned family doctor. He had no surgical hospital appointment. He at once saw that Pasteur's statement was of great importance, and wrote on the bad effects which might arise from bacteria; he washed his wounds with various antiseptics, notably carbolic acid, with the view of hindering the growth of bacteria in the discharge, but never suggested, as Lister did, that these antiseptics should be used to kill the germs before they got a footing in the body or in the wound.

In 1864 Spencer Wells, one of the pioneers in ovariotomy, in an address at the meeting of the British Medical Association,* gave a most excellent description of Pasteur's work and its bearing on surgery. He was a great practical surgeon and a bold operator, but, curiously enough, he did not follow up the logical conclusions he drew from Pasteur's works. Indeed, his only remark as to the practical application of the work was that "surgeons should always secure the most scrupulous cleanliness and purity of everything surrounding them"; as regards any other treatment, he advocated the internal administration of sulphites.

The third man, so far as I can find, who took up Pasteur's work was Joseph Lister. I understand that he was walking home with his colleague Professor Thomas Anderson, the professor of chemistry in Glasgow, one afternoon towards the end of 1864, discussing putrefaction and its causes, when the latter suggested that he should read certain papers on fermentation and spontaneous generation which had been recently published by a rising young French chemist, Louis Pasteur. Lister, who naturally was not conversant with chemical literature, at once got these papers, and from their perusal he found that it was not the gases of the air that the surgeon had to fear but minute living particles floating in the air and settling on surrounding objects in the form of dust, and that so long as these particles were excluded from the putreseible material after it had been boiled putrefaction did not occur. When the protection was removed and the dust was allowed free admission, minute bodies belonging to the lowest class of vegetable life could be seen swarming in the fluid, and putrefaction very quickly set in.

The conclusion was that some of the particles excluded by filtration or destroyed by heat were actually living germs, which, as they developed in the putrescible material, set up the putrefactive fermentation, just as the vinous fermentation was only set up on the admission of living yeast cells.

* BRITISH MEDICAL JOURNAL, 1864, vol. ii, p. 381.

Lister's application of Pasteur's statements was (1) that these germs must be prevented from getting into wounds during and after operations, and that they must be killed if possible outside the wound; (2) that if they have succeeded in getting into a wound before the case is seen by the surgeon, as in compound fracture, they must be killed if possible before they have had time to spread and secure a footing, and further germs must be prevented from entering the wound afterwards. Lister's method of dealing with the information gained from Pasteur's work was thus more definite and more drastic than the suggestions of the other two surgeons referred to, and reflects the action of the philosophical and experimental type of brain.

He was mentally well fitted for the task which he had undertaken. He had one of the attributes of genius well developed: he did not overlook apparent minutiae. Nor was he led away by the absurd copybook proverbs—"There are exceptions to every rule" and "The exception proves the rule." If he found an exception to a supposed rule he wanted to know why; he did not pass it over as if it were merely an exception and of no consequence. Pasteur had this faculty perhaps still more developed, and Koch in a lesser degree; with all three some part of their success depended on the fact that they were not content to regard deviations from the ordinary course as trifling, but wanted to know why these deviations occurred, and in doing so came across unexpected and helpful information.

Further, Lister had a very logical brain and a very open mind; he was ready to modify his views and plans at once if proper evidence demanded it. He was full of sympathy for suffering, and would devote himself to the relief of a patient without consideration of time. I think that probably his greatest characteristic was his conscientiousness. Before he took action on any point he turned the matter over and over in his mind so as to be as sure as possible that his action was right. He determined to test the theory first in compound fracture, and in cases where only a short time had elapsed before they came under the care of the surgeon, because the prognosis in compound fractures was so bad that it could not be made much worse, and might be improved.

I need not go into the eleven cases which he published in his first paper. The results presented a great contrast to those that he had been obtaining previously, though I think it doubtful whether true asepsis, as we know it now, was obtained in all of the cases. (Five of the eleven undoubtedly followed an aseptic course.) I may mention one or two observations that he made on these early cases which were new to him and of the greatest interest and importance.

In the first place these cases gave him a high opinion of the value of carbolic acid for his work; indeed, it is very interesting that this substance, chosen more or less at haphazard, has turned out to be the most useful all-round antiseptic. Put shortly, only two of the eleven cases developed phagedaenic gangrene—a smaller proportion than usual; but the point that he makes is that in one the disease developed after he had left off the use of the carbolic acid, which he thought had done its work, and in the other it broke out at a small wound which had been overlooked and had not been treated with carbolic acid at all, and had spread from this little wound to the lower part of the bigger wound before it was noticed. In both cases recovery took place, but after a long struggle.

More important was the behaviour of blood clot in aseptic wounds. He mixed carbolic acid with the blood and torn tissues and thus left a mass of coagulum and shreds of tissue in the wound, and several points quite new to him were observed. He noticed (1) that the clot did not contract and break down as he was accustomed to see, but remained firm and adherent to the sides of the wound; (2) that a piece of the clot examined microscopically after some days contained numerous connective tissue cells, some in bundles; later on blood vessels began to develop; (3) that pieces of dead tissue mixed up with the clot also became infiltrated with these connective tissue cells, so that not only did organization occur in the dead clot but also in the more substantial pieces of dead tissue as the result of the penetration of these connective tissue cells into them and the subsequent disappearance of the dead tissue; (4) that, in some cases, after two or three weeks the edge of a thin layer of clot on the surface could be lifted up, disclosing a layer of epithelium spreading over the clot just below the surface and completing the process of cicatrization.

These points constitute the process of healing by blood clot which we have taken advantage of ever since in cases where we could not conveniently bring the edges of the wound together. Curiously enough this point seems to be lost sight of almost completely at the present time. The other day I picked up copies of four recently published books on general surgery, and in only one of them was there any mention of organization of blood clot. This is a pity, though I doubt if exposed blood clot could be kept aseptic for a sufficient length of time to permit organization where the technique of the surgeon excludes the use of chemical antiseptics.

I may now pass on to the beginning of the session 1872-73, when I first became acquainted personally with these matters. I began the actual study of medicine in May, 1871, and devoted myself for the first eighteen months to botany, natural history, and chemistry, and a junior course of anatomy. In October, 1872, I took out the classes of surgery, physiology, and anatomy. There was an interval between the classes from 12 to 1 o'clock. My lodgings were a considerable distance away, and what I wanted was shelter from the biting east winds and the wet. At that time there was no Students' Club at Edinburgh as there is now, and the only thing I could think of was to sit in the general library. But it was small and crowded with students of all faculties, and there was no chance of a shy youth like myself getting a seat. So it occurred to me that I might as well take out my hospital ticket in October, 1872, as in the following May, which would have been the usual time; in going round the hospital I might learn something, and anyway I would get shelter.

I shall never forget the first day that I went to the hospital. At 12 o'clock I crossed the road to the infirmary and found crowds of students hurrying along the lobbies—a good many, indeed, running. I joined the company, full of curiosity, and found that we were going to Lister's clinical lecture. We ultimately reached the large operating theatre and found it filled with men crowding the gallery and standing at the back and in the gangways; there must have been over 200 there, and they were senior men, for the clinical surgery class was not usually attended till the fourth year. Presently a man walked into the arena, sat down on a chair placed on the floor of the theatre, and, crossing his legs and putting his right hand on his thigh, he began his lecture. This man was Lister. He had not spoken many minutes before I became fascinated with the subject and could not help seeing the wonderful era that was dawning for surgery. I had my notebooks for the other classes in my hand, and as he spoke very slowly and clearly and I scribbled very quickly, I was able to take down practically the whole lecture, though, not having learnt any surgery, I did not understand it at all clearly at first. And thus, simply seeking shelter from the "cauld blasts o' Auld Reekie," and not knowing that I had met my fate, I became entranced by the wonderful vision laid before us by Lister.

Is it any wonder that I left the theatre an enthusiast for the profession I had chosen, and that on lecture days I was one of those who ran? An enthusiast I still remain. On my way home that first afternoon I bought a superior notebook, into which, as soon as I got home, I copied out my notes of Lister's lecture and all that I could remember, looking up the words I could not understand in my textbook on surgery. This I continued to do after every lecture, and this notebook, containing Lister's lectures for the winter session 1872-73 and part of the following summer session, I have presented to this College, and it will be found with the Lister relics.*

* In his lectures Lister tried to show and discuss examples of as many different surgical diseases (even the simplest) as came to his clinic, so that in the course of the session the students had seen a considerable variety, especially of the ordinary cases which turn up in private practice. In my notebook we find among other things spinal caries, varicocele (with operation), epulis, spina bifida treated by drainage, suprapubic lithotomy (probably the first case performed for many years), excision of elbow, simple fracture, burns, ununited fractures with operation, stricture of oesophagus, stricture of the urethra, malignant tumours of jaw, naevus, hypospadias, cancrum oris, fistula in ano, strangulated hernia, etc.

At that time, and until Lister left Edinburgh, the rivalry among the students—between Lister's followers and those who continued the old system—was very marked. The Listerians, who were considerably the more numerous, looked on the non-Listerians as lost souls, Tories of the most die-hard description, and not likely, when they came to practise their profession, to be able to give their patients the best chance possible. The non-Listerians, on the other hand, looked on the others as crazy believers in vain things like germs, rash to a degree, blinded with their enthusiasm, placing their patients in the greatest danger by the outrageous treatment that they proposed, and, as they said that their wounds did not suppurate while those of the other side did, liars of the first water. This rivalry increased for a considerable time, and when I became Lister's house-surgeon in Edinburgh, in 1876, it was probably at its height. It was, I believe, of the greatest value to the cause of asepsis. It made us all extremely careful, because we knew that everything we did was closely watched and no excuses would be accepted if a case went wrong; it would be the principle that would be blamed, and not the individual. By this time the antiseptic treatment had reached a stage where we felt that suppuration should not occur in an operation wound made through unbroken skin; if it did occur—and as we were not perfect, one or two cases would suppurate during the six months' session—we all felt it very much; we went about as if everything were lost, ashamed to raise our heads, and subjected to merciless chaff. Our only topic of conversation among ourselves on such occasions was how the infection had got in, what was the error in technique which had been committed, and whose fault it was. I do not hesitate to say that this holds true at the present time just as much as it did in the olden days.

By this time (1872 onwards) Lister's work had attracted more and more attention, and quite a number of surgeons began to visit Lister's wards. Curiously enough, very few British surgeons were to be seen, but other countries were well represented, especially Germany. Lister made a special point of showing all his methods and results to the visitors, and as there were constantly fresh arrivals he had to repeat his story frequently; thus his hospital visits were somewhat prolonged. In the early days to which I specially allude the steam spray had not yet been introduced, and it was very hard work to keep a hand spray going for any considerable time. The dressing of a patient followed a regular routine: the dresser on duty got on his knees at the side of the bed, and as soon as the bandages had been cut he started his hand spray; Lister then lifted off the outer dressing, which was solemnly handed round to each distinguished foreigner to smell. Having satisfied themselves that there was no putrefaction, the deeper piece of gauze which was generally placed over the region of the wound was passed round to show that there was no pus; in cases where it had not been possible to bring the edges of the wound completely together blood clot could be seen in places between the edges of the incision. In such cases Lister usually covered the wound with a piece of material called "protective," which was impermeable to carbolic acid; when this was exposed he would take a pair of forceps and peel it off, exposing the wound with the adherent organizing blood clot lying in the spaces where the edges had not come together, solid and firm, and with no sign of inflammation or suppuration in the wound. As a rule, this was followed by a sort of gasp of surprise by the distinguished foreigners, and then a violent conversation would break out among them, accompanied by equally violent gesticulations, so that one became alarmed lest the peace of the nations was going to be endangered. The poor dresser, who was almost, and indeed sometimes actually, faint from the pumping of the carbolic spray, was for the time being completely forgotten. But, however exhausted he was, and however much his wrist and arm ached, not one of his dressers would give in and let Lister down.

For some years Lister was probably most interested in revising the operative treatment of every disease or injury that presented itself from the point of view that he need not now fear sepsis in the operation wound. At first he did more bone work than anything else—ununited fractures, badly united fractures, deformities of bone (he was the first to operate for knock-knee, very much on the lines of operation devised by Sir William Macewen some time later), wiring or pegging recent fractures—for example, fractures of the patella or olecranon—operations for varicose veins, open radical cure of hernia, extensive operations for cancer of the breast, and so on.

He was the first to resuscitate suprapubic lithotomy, though this is generally attributed to others. His remarks on this matter will be found in my notebook, where his reasons for this suggestion are given, but he was not very happy in their practical application.

He continued his efforts to find fresh antiseptics which might be less irritating and more useful than those he had hitherto employed, and reconsidered the treatment of all sorts of cases which came before him from the point of view of whether something better might not be done for them by operation than was being done at that time on the knowledge that sepsis might be reckoned to have now been entirely abolished from wounds made by the surgeon through unbroken skin. It was probably in that direction more than in any other that Lister's work became so intensely interesting to the students. They would come to his wards and see treatment employed which had apparently never been heard of or thought of by the other surgeons who did not employ antiseptic measures. It would be hopeless to attempt to give any sort of list of the new operations which Lister did, and he himself absolutely declined to publish them.

When I became more intimately associated with Lister I made repeated requests to be allowed to publish notes of his clinic, especially of the new operations and new lines of treatment which he was employing; but although he had done that sort of thing for Mr. Syme, he pointed out, quite correctly, that the matter was very different, and that if such procedures as opening joints, complicated operations on bones, and many others, were published, it might quite well happen that some surgeon who was not a believer in antiseptic treatment, or not sufficiently acquainted with the technique, might perform an operation on similar lines, and being without the protection of antiseptics the patient might quite well lose his life or limb as a consequence. That is the explanation why so little is known of Lister as a surgeon. But, as I said, I think that it was his fresh outlook on treatment, and the interest of speculating what fresh procedure Lister would suggest in a particular case, that fascinated the students most. The only sphere of operative work in which he did very little was abdominal surgery. Indeed, with the exception of ovariotomy, which was curiously enough supposed to be a very difficult operation and one sacred to a few specially gifted men, comparatively little work had been done in abdominal surgery as we now know it before Lister retired from practice, and he openly stated that he did not feel justified in embarking on surgery in a region with which he was not thoroughly familiar.

I became Lister's house-surgeon in Edinburgh in October, 1876, having spent nearly a year in Vienna and Strasbourg. I found the greatest enthusiasm over Lister and his work. Indeed, the fact that I had worked in his wards and was going to be his house-surgeon on my return to Scotland was a sort of open sesame, and one of the professors actually asked me to show him exactly how Lister dealt with his cases.

It was in the spring of 1877 that Lister accepted an invitation to go to London as professor of clinical surgery at King's College, conjointly with Mr. John Wood. The first that I heard of it was one Sunday morning, I think a day or two after he received the invitation, when I was sleeping quietly in the house-surgeon's bedroom. I woke up to find someone shaking me, and to my astonishment on opening my eyes I found that it was Lister. He told me about his invitation to London. He had not yet at all made up his mind about it, but if he went he would need to take a small staff with him familiar with his methods, and he had come down that morning to know whether, if he decided to go, I would go with him and again act as his house-surgeon for six months at King's College Hospital. Go

with Lister to London! I could not believe my ears. Of course, I would go with him to London or anywhere else. In addition he took Dr. John Stewart (now one of the leading surgeons in Canada and held in very great esteem there), Dr. W. H. Dobie of Chester, and Dr. Altham (who died soon afterwards) as clerks.

He arranged to begin his work there at the beginning of the winter session in October, 1877, and he was asked to give the address at the opening of the winter session. At that time he had become very interested in the question whether there were different "species" of bacteria, each with its own actions on fermentescible substances or in connexion with diseases. He had already been working with milk, and he decided to investigate the lactic fermentation of milk, which he did during the summer and autumn of 1877. He satisfied himself by many ingenious experiments that a small bacillus, to which he gave the name of *Bacillus lactis*, was the only cause of the lactic fermentation of milk, and its sole external function in the scheme of nature. The research was carried out with the precision and thoroughness which characterized all Lister's work.

He not unnaturally thought that the absolute demonstration of a specific bacterium, explaining much that was obscure at that time, would be of the highest interest to his audience. Large numbers of the leading surgeons in London and the provinces came to hear this lecture. Perhaps not unnaturally they expected to be told about the revolution in surgery which Lister had inaugurated, and instead they had to sit for an hour listening to details of a series of experiments which proved that the lactic fermentation of milk was due to a particular bacterium. The expressions on the faces of the audience were very interesting and rather amusing; the majority of the surgeons present could not understand what the lactic fermentation of milk had to do with surgery. Those were the days of the "practical surgeon," as opposed to the "scientific surgeon," the latter being supposed (why I cannot imagine) to have no practical skill or knowledge. It took a considerable time before the "practical surgeon" realized that his day was past.

When we arrived in London, as far as I can remember no one at King's College was doing anything specially in the direction of antiseptic work, and indeed only a very few surgeons in London. As regards Lister's lectures, the chief thing that struck us at once was the almost entire want of enthusiasm among the students as compared with Edinburgh; there was no crowd running to get a good seat. Apart from Lister's dressers, only a few students would stroll into the theatre quite casually, apparently taking little interest in the lecture and seldom taking any notes. After the enormous classes in Edinburgh and their great enthusiasm it was very disappointing and depressing. We found after a time that probably the main cause of this was that the examiners in surgery for the various diplomas and degrees were for the most part not favourable to Lister's views, and the students were therefore afraid to attend Lister's lectures in case they should by accident give his views to the examiner. A good many of them, however, planned to stay in town for some time after they qualified so as to see something of Lister's work. This state of matters continued for some time but gradually died away.

Lister was quite well received by the staff and the students, but the nursing department was very difficult to work with. The hospital was at that time nursed by a sisterhood who looked on the wards as their private rooms, into which no man should come without their permission, nor should he interfere with any of their arrangements, such as ventilation, etc. They could always produce a rule of their sisterhood why we should not do this or the other thing which we considered essential for the success of our work. Had we not possessed a keen sense of humour (being more or less of Scottish descent) I do not know how we could have got through, but most of the restrictions were so childish and so evidently invented on the spur of the moment that we could not but laugh at them. I believe the real trouble was that till we appeared on the scene the nurses dressed the wounds, but when Lister arrived he naturally would not allow them to meddle with the dressings; this solution did not occur to me for some considerable time.

The staff, on the other hand, were quite cordial and interested. Not long after we arrived one of the surgeons was going to amputate a limb, and he asked me to come and look after the antiseptic arrangements. His technique was pretty defective, and he did not seem able to visualize the germs which were ready to seize every opportunity of getting into the wound, so I accidentally from time to time squeezed a quantity of carbolic lotion over his hands, for which I was, of course, very apologetic. He did everything that I suggested till it came to tying the vessels, for which he used silk and left the ends long. I begged him repeatedly to cut them short, and told him that they would never separate if the wound remained aseptic; but he was adamant—he had never seen a case where the ligature could not be pulled out after a few days. The wound healed by first intention except where the bunch of ligatures was, and no suppuration occurred. Day after day I dressed the case for him and he pulled the threads without success. Gradually he began to think that I had told him the truth, and ultimately I got him to pull the threads as far down as he could and cut them off as high up as possible. This he did, and fortunately, as I had taken special pains to keep everything aseptic, no infection took place, and that end of the wound was healed in a few days and no further trouble resulted.

At the time of the migration to London we were still using carbolic gauze, carbolic spray, and carbolic lotions, and although thymol, eucalyptus, and various other antiseptics were tried during the next four or five years, no real progress was made in this respect till after the publication of Koch's work on antiseptics. After that Lister took up various mercurial preparations, and a variety of gauzes impregnated with preparations of mercury were employed, which had all to be discarded after a time on account of irritation of the skin. Ultimately Lister examined a double cyanide of mercury and zinc, and this, being insoluble in water, was found to be unirritating. But it was effective as an agent to inhibit the development of bacteria, though possibly not to destroy them. It was soluble in the mixture of serum and blood which came from the wound in sufficient amount to render it an unfit soil for the growth of bacteria. This we have used ever since with quite satisfactory results, and I believe that it just fills up the loophole which is left where dressings which are simply sterilized but do not contain any antiseptic are employed. Where a large amount of discharge is expected I generally reinforce the cyanide dressing by a mass of salicylic wool placed outside it. As to these gauzes and wool, it must be remembered that though they contain antiseptics they must be sterilized in the autoclave also, because the antiseptics are not volatile, so that bacteria which may lodge in the dressing are not acted on by the antiseptic. The diluted lotions of mercury bichloride (1 in 2,000 and 1 in 4,000) were also largely substituted for carbolic acid; the carbolic spray had been given up in 1887.

Lister's active work in surgery came to an end about 1893. The death of Lady Lister in the spring of that year, followed soon after by his retirement from the hospital on account of the age limit, changed entirely the current of his life. But by that time general septic diseases had become practically unknown in his practice in so far as operations through unbroken skin were concerned, and suppuration, even of the mildest type, was an occurrence of extreme rarity, and the possibility of septic complications was quite negligible. He had also reached a point in his technique where the possible irritation caused by the antiseptics employed was not noticeable and did not interfere at all with the healing of the wounds.

In 1895 Lister was elected President of the Royal Society, and the work connected with that society gave him another five years of life. But after that, although honours continued to be showered on him, the great brain gradually became tired, his memory failed, and he began to long for the time to come when, as he firmly believed, he would meet his wife and his friends again and commence a new life.

Reports of Societies.

ABDOMINAL EMERGENCIES IN CHILDREN.

At a meeting of the Brighton and Sussex Medico-Chirurgical Society on May 7th, Dr. E. F. MAYNARD, the President, in the chair, Mr. M. FITZMAURICE-KELLY read a paper on some abdominal emergencies in children.

The mortality associated with these conditions was, he said, to a great degree preventable, and improvement in results was to be looked for mainly in the direction of earlier diagnosis and treatment. Dealing first with appendicitis, attention was called to the fact that, early in the attack, pain was often not localized, but was felt across the abdomen. The importance of a band of hyperaesthesia above Poupart's ligament, as evidence that perforation had not yet taken place, and the information to be derived from rectal examination, were especially emphasized. Treatment consisted in immediate operation, delay being dangerous in young children. The right paramedian incision with internal displacement of the rectus was preferred in most cases; in those with definite localization to the right iliac fossa Mr. Fitzmaurice-Kelly preferred Battle's incision, closing it again with drainage of the rectus sheath, and providing stab drainage elsewhere if necessary. In each individual case it had to be decided whether the peritoneum was capable of dealing with the exudate, but as a general rule drainage was more frequently required in diffuse peritonitis in children than in adults. The value of pituitary extract and eserine, in combination, in post-operative ileus was mentioned; in the worst cases jejunostomy was the only hope, and should not be unduly delayed. Acute inflammation of Meckel's diverticulum was briefly mentioned, and the value of a paramedian incision in dealing with it pointed out. Pneumococcal peritonitis was not very rare among young girls of the poorer class; many cases were mistaken for appendicitis; suggestive evidence was the onset with symptoms of pelvic irritation—loose stools, painful and frequent micturition—and in acute cases severe toxaemia, with disproportionate increase of the respiration rate. The acute cases did best with drainage, and the value of blood transfusion, as recommended by Fraser and McCartney, was mentioned. Referring to intussusception, Mr. Fitzmaurice-Kelly laid stress on the extreme gravity of the condition, and the serious mortality—about 30 per cent.—associated with it. This was almost entirely due to a failure to recognize the urgency of the case at the outset. The clinical picture was very definite and strikingly uniform, and it was a serious error to delay treatment because a tumour could not be felt or no blood was passed when the symptoms were otherwise suggestive. Three recent fatal cases were detailed, illustrating the sources and the dangers of delay. Pyloric stenosis in infants was, in the light of recent improvements in technique, claimed as a surgical emergency. The early diagnosis, and especially the differentiation of stenosis from pyloro-spasm, were discussed, and Rammstedt's operation was described. In view of the fact that the mortality of cases operated on by this method was of the order of 30 per cent., against 80 per cent. in those treated medically, Mr. Fitzmaurice-Kelly contended that an operation should be performed at the earliest possible moment after the diagnosis was definitely established.

Mr. L. A. PARRY recalled a case of intussusception in which pain had been absent throughout, and the symptoms were otherwise obscure. He did not find cutaneous hyperaesthesia of much value in practice, and regarded the physical signs of rigidity and tenderness on pressure as of more value than symptoms. He called attention to the difficulty of diagnosis between appendicitis and certain cases of ileo-caecal tuberculosis, and was strongly in favour of immediate operation in appendicitis in children.

Mr. H. NETHERSOLE FLETCHER remarked on the virulence of cases of appendicitis starting with diarrhoea. In the matter of drainage he thought no risk should be taken, and in cases of doubt a tube should be left in. He discussed the diagnosis of intussusception from gastro-intestinal catarrh with bloody stools in infants, and noted particularly the intermittency of the symptoms in the former.

Mr. J. R. GRIFFITH advocated a transverse incision outside the linea semilunaris, splitting the rectus sheath if more room were required, in cases of acute appendicitis. The PRESIDENT and Mr. H. M. GALT also took part in the discussion.

Mr. FITZMAURICE-KELLY, in reply, agreed with the President that the diagnosis of appendicitis had not grown more exact, but contended that, in the presence of acute symptoms, an early exploration was the safest course, and the attempt to arrive at certitude might lead to a fatal delay. The same argument applied with even greater force to intussusception, and he had never seen any harm come of a negative exploration.

DIAGNOSIS AND TREATMENT OF INTRA-THORACIC DISEASE.

A MEETING of the Manchester Medical Society was held on May 6th, the President, Professor G. R. MURRAY, being in the chair.

Mr. H. MORRISTON DAVIES read a paper on observations on the diagnosis and the treatment of intrathoracic disease. In the first part of the lecture five cases of particular interest, as regards either diagnosis or treatment, were described. The first was a case of gumma of the lung simulating tuberculosis. The second was a case of primary bronchial carcinoma, which was discovered accidentally by the *x* rays in a patient suffering from chronic bronchitis and emphysema. The diagnosis was made originally on the radiogram, then made more certain by the appearance of characteristic symptoms, and finally confirmed by operation. The third case was that of a woman who for thirty years had attended hospitals for dyspepsia, dyspnoea, and tachycardia; the *x* rays revealed a diaphragmatic hernia. The fourth case was a unilateral bronchiectasis, due, it was discovered as a result of treatment, to fragments of teeth which must have been in the lung for ten years. The bronchiectasis was treated by artificial pneumothorax and phrenicotomy; following collapse of the lung, fragments of tooth were expelled. Later, owing to the lung creeping out, the symptoms returned and a thoracoplasty was performed. Following this a still larger fragment of tooth was coughed up, since when the patient had remained perfectly well. The last case was of a man wounded in the neck by shrapnel which caused mediastinal suppuration and chronic pneumonia, the consequence of which was bronchiectasis with offensive sputum. The shrapnel in the base of the lung escaped notice until an *x*-ray photograph was taken with very oblique rays (from above downwards). Phrenic evulsion was done, paralysing that dome of the diaphragm, since when there had been disappearance of all symptoms. The second part of the lecture was devoted to a description of the value of phrenic evulsion and thoracoplasty. Phrenic evulsion had superseded phrenicotomy because it broke the continuity of the accessory phrenic as well as the phrenic itself. It was therefore much more effectual, and almost constantly resulted in paralysis of one half of the diaphragm, the dome on that side rising up into the thorax and producing partial collapse of the base of the lung. The operation was of value for basal tuberculous and bronchiectatic lesions of the lung, for abolition of diaphragmatic cough, for relief from vomiting associated with coughing, as an aid in cases of partial pneumothorax, as a means of reduction of the pleural cavity in cases of chronic effusion, as a preliminary to thoracoplasty, and as a means of testing the resisting capacity of the opposite lung. It was also a prophylactic measure against onset of bronchiectasis in cases of unresolved pneumonia. The statistical results of thoracoplasty were practically the same as those for pneumothorax—namely, 35 per cent. healed, 30 per cent. improved, 35 per cent. uninfluenced or worse. The operative mortality was about 8.5 per cent. It was indicated in unilateral, or mainly unilateral, cases of tuberculosis in which there were extensive mechanical changes, and in which artificial pneumothorax was impossible owing to adhesions, also in unilateral bronchiectasis. Slides were shown illustrating the collapse of the lung and chest wall, and the comparatively slight and resultant outward deformity.

ANEURYSM.

A MEETING of the Section of Medicine of the Royal Academy of Medicine in Ireland was held on May 1st, the President, Dr. F. C. PURSER, in the chair.

Dr. J. SPEARES read a paper on aneurysm, based on his examination of 607 cases in the cardiac clinic of the Ministry of Pensions; in 37 cases a diagnosis of aneurysm was made. An aneurysm was present in one patient, aged 30. In 13 cases the Wassermann reaction was positive and in 17 cases negative. In 10 cases the diagnosis depended entirely on the *x* rays, and in no case was a tracheal tug present. Dr. Speares attributed the large number of aneurysms in his series to the fact that an *x*-ray examination was made as a routine in all cases.

The PRESIDENT referred to the difference between the blood pressure in the two arms as a very important diagnostic point; it would be interesting, he said, to determine whether this difference occurred only when the aneurysm was in one place, or when the aneurysm was in the ascending aorta or elsewhere. He had never seen a case in which stimulation of the sympathetic from an aneurysm had occurred.

Dr. H. C. DRURY commented on the small number of cases of aneurysm found in patients under 30 years of age, and asked if these cases were marked out as being syphilitic. He had almost always been unable to detect tracheal tugging. A change in their voice was often the first thing noticed by these patients, and Dr. Drury thought that in a great many cases this was a very good indication as to what was wrong. For some time now the difficulty of diagnosing the presence of aneurysm, without an *x*-ray examination, had been recognized. The lack of pain in these cases was one of the great difficulties regarding diagnosis. At present he had a patient in hospital, an elderly woman, with no symptoms at all except some indefinite pain in the chest, but an *x*-ray examination showed an undoubted aneurysm.

Dr. T. G. MOORHEAD commented on the fact that while 37 cases of aneurysm were encountered out of the 600 cases that were examined in Dublin, only 6 cases of aneurysm were found amongst the 300 similar cases examined in Glasgow. His own experience was that radiologists differed enormously in their diagnosis of aneurysms. In his experience, nearly every patient with a genuine aneurysm had a positive Wassermann reaction also.

Dr. A. R. PARSONS had been able, by means of *x* rays, to find aneurysms in patients which would probably never have been detected without *x*-ray examination.

Dr. V. M. SYNGE thought that swellings of the aorta fell into three classes: (1) The cases in which the lumen of the aorta was a little larger than usual but there were no pressure symptoms; there was usually a systolic aortic murmur and an accentuated second sound. These cases should not, he thought, be classed as aneurysms. (2) The typical cases of saccular aneurysm, due to syphilis; he had never come across one in which the Wassermann reaction had been negative. (3) Cases with a general dilatation of the aorta, occurring in old people with marked arterio-sclerosis, associated with some pressure symptoms, such as dysphagia, and with a negative Wassermann reaction. He agreed that tracheal tugging did not often occur, but at present he was treating a case in which it was exceedingly well marked, and it could be both seen and felt.

Dr. W. G. HARVEY said that there was a great difference in the width of the aorta in different people, and the width of the aorta measurement was no criterion of an aneurysm at all. The diagnosis was made almost entirely on the screen, and not from the photograph. A dilated auricle had occasionally been taken for an aneurysm by radiographers. He did not think that it was for want of a uniform plan of examination that mistakes were made, for nearly every radiographer adopted the same plan.

Dr. SPEARES, replying, said that in five or six cases they had been put on the track of an aneurysm simply by noticing the difference in blood pressure in the arms. Every patient had been examined by *x* rays, some twice. No mention had been made of any cases except those reported as definite aneurysms. Each man had been examined eight, and sometimes ten, times for tracheal tugging, and this condition had never been found. They had never been able to satisfy themselves that in any of the cases there was any reasonable evidence of diastolic shock, and he would put this condition in almost the same class as tracheal tugging. Two of the patients with aneurysm under 30, had syphilis, but the others had not. As a result of his experiments, he had not any doubt that *x* rays were the most reliable means at present available for diagnosing aneurysm. He thought it quite possible that there were cases of what might be called border-line aneurysms, but these were very few. They were indebted to their radiologist for detecting aneurysms in some cases when they had been doubtful about it, and also for finding aneurysms in cases in which previously they had not been suspected.

Reviews.

FRACTURES AND DISLOCATIONS.

THE new book on *Fractures and Dislocations*[1] by Dr. PHILIP D. WILSON of Harvard and Mr. WILLIAM A. COCHRANE of Edinburgh is an important one, for it embodies the experience and the opinions, not only of the authors whose names appear upon its title-page, but those of a large number of American surgeons skilled in the treatment of these injuries. Primarily it is the expression of the views of the members of the fracture service of the Massachusetts General Hospital in Boston, which service grew out of the fracture squad organized by that well known authority Dr. C. L. Scudder. This service has been at work since 1920. It is responsible for the treatment of all cases of fracture and dislocation admitted to the wards or cared for in the out-patient department of the hospital. It is composed of six surgeons, two being appointed from each of the two surgical services and two from the orthopaedic service. The results of this innovation have been most satisfactory. In 1922 the staff had arrived at practical unanimity concerning methods of treatment, and in the same year a conference of surgeons of wide experience in the States and Canada agreed with the service as to the main conclusions now set forth in this book. As the authors remark, "It was perhaps surprising and certainly gratifying to find such an unanimity of authoritative opinion."

Very rightly the authors have had an eye, in writing this book, to the needs of the general practitioner, and it will, we think, be found that the appliances required are such as are within the reach of most up-to-date medical men. The authors have set before them as their main object the attainment of a good functional result, which, as Mr. Dowden of Edinburgh has elsewhere shown, is not incompatible with considerable anatomical deformity. The chapter on the principles of treatment is valuable. The authors clearly state the paradoxical situation which faces the surgeon, who must choose between complete immobilization and its attendant risk of muscular atrophy and malnutrition of the limb, and incomplete immobilization with risk of imperfect alignment. The principles and means of treatment are well and clearly set forth; among the latter the Thomas splint occupies a prominent place. As regards the use of plaster-of-Paris, the authors are in agreement with Sir Robert Jones in recommending that encircling plaster should not be used unless it is divided along at least one side. For compound fractures débridement is recommended as much in peace as in war, when the soft parts are extensively damaged, and the Carrel-Dakin system is advocated in infected cases.

In sixteen chapters the injuries of various regions of the body are described, each chapter beginning with well illustrated statements of the normal anatomy, followed by descriptions of the methods of treatment which have been found to give the greatest satisfaction. The chapters on fractures of the femur and leg bones are very full, as befits these important and crippling injuries. Traction is in

[1] *Fractures and Dislocations.* By Philip D. Wilson, A.B., M.D., F.A.C.S., and William A. Cochrane, M.B., Ch.B., F.R.C.S.Edin. London: J. B. Lippincott Company. 1925. (Med. 8vo, pp. xv + 789; 978 figures. 45s. net.)

general recommended, and direct skeletal traction by ice-tongs is favoured, especially for fractures of the femur. These chapters represent a complete survey of the subject of the book, and even include fracture of a sesamoid bone of the great toe. The illustrations are many and good.

We can safely recommend this book as one of the best and most up-to-date guides for the general practitioner, as well as for the expert surgeon and the student. It well fulfils the promise of its title-page to deal with the immediate management, after-care, and convalescent treatment, with special reference to the conservation and restoration of function.

TUMOURS AND CANCER.

MORE than sixty years ago Virchow stated his belief that no man then living could say what precisely constituted a tumour. In a recently published monograph on present knowledge of tumours with special reference to the carcinomata,[2] Professor CARL STERNBERG of Vienna expresses the opinion that Virchow's dictum still holds good. He reviews the subject from several aspects and in the light of an extensive literature. The literature, it is true, is mainly German, but this limitation is here not altogether a disadvantage, since it serves to bring out the fact that the conclusions of German writers are practically identical with those reached by authorities in other countries.

Several authors are quoted to show how varied are the attempts at a satisfactory definition of a tumour, the nearest approach being that it is a new growth increasing autonomously, independently of other structures and without a functional objective. The benign and malignant tumours are best differentiated by the degree of maturity or completed growth, the former being mature, the latter immature growths. A clear line of demarcation, however, is not anatomically possible, for benign tumours, which histologically have many malignant characteristics, are not uncommon. Several investigators have endeavoured to determine the malignancy of a tumour by the morphological, chemical, or functional characters of its cells, but none of the explanations are adequate. Professor Sternberg expresses special interest in the Freund-Kaminer reaction of the serum of cancer-free individuals on cancer cells, but he points out that, though this may be of value in diagnosing cancer, it does not demonstrate any actual difference between the chemical characters of malignant and of normal tissue cells. Similarly no clear differentiation is possible from a consideration of such functions as secretion, phagocytosis, motility, and liability to degenerative or other changes. We are warned, therefore, against diagnosing malignancy by the character of individual cells.

Professor Sternberg also agrees with Virchow in considering that neither chemistry nor physiology affords a basis for the classification and nomenclature of tumours. Their classification must be anatomical. The nomenclature, however, has become confused by the introduction of new names ending in "oma," such as cerebroma, nephroma, hepatoma, and so on. In a chapter on metastases and recurrence, the impossibility of setting a term to the period within which the latter may occur is emphasized. Cases are quoted of tumours recurring thirty years after operation.

The etiology of tumours and the experimental researches on animals are considered. The author points out that the many theories of the causes of cancer all come within the range of Virchow's cell irritation theory, Cohnheim's embryological theory, or the parasitic theory. None are held to be altogether satisfactory, although they go a long way and add to our knowledge. Experimentally the most acceptable theory of causation is held to be that, as indicated by the tar-cancer experiments on mice, under the influence of some excitant, pathological regeneration is induced, which will develop into a tumour, will continue to grow independently and may become malignant, if the irritant acts long enough and often enough on cells predisposed to excessive pathological regeneration. In this sense any mechanical, chemical, thermal, or parasitic irritant might become the causative agent of cancer. Although this theory enables us to understand many of the facts in the pathology of new growths, Professor Sternberg considers that we are far from a definite solution of the problems involved.

The concluding chapter of his book deals with the vexed questions of heredity, transformation of benign into malignant tumours, formation of new growths on cicatricial tissue, spontaneous disappearance of tumours, coexistence of cancer and tubercle, cancer and gastric ulcer, cancer and gall stones, and the influence of pregnancy. Statistics are regarded as untrustworthy, especially in connexion with the increase of cancer generally or in some countries more than in others. The only statistics regarded as approaching reliability tend, it is said, to show that no general increase in cancer is taking place, and that differences in its incidence in one country and in another are probably due to the personal equation of the observers and to different methods in diagnosing and recording the cases.

[2] *Der heutige Stand der Lehre von den Geschwülsten im besonderen der Carcinome.* Von Professor Dr. Carl Sternberg. Abhandlungen aus dem Gesamtgebiet der Medizin. Vienna: Julius Springer. 1924. (Med. 8vo, pp. 98. 0.65 dollar.)

X-RAY THERAPY.

The Principles and Practice of Roentgen Therapy,[3] by Dr. I. SETH HIRSCH of New York, is a book which is the direct outcome of the later developments of *x*-ray therapy due to the introduction of the high voltage transformers and the use of a well filtered stream of highly penetrating *x* rays. As the author points out, the striking development of this technique is that it has placed *x*-ray therapy on a scientific basis, and that it now rests firmly upon the foundations of physics, chemistry, and biology. That the final word has not yet been written is obvious, but present-day procedures are far removed from the somewhat haphazard and go-as-you-please methods of the earlier days—methods, however, which in many hands often gave surprisingly good results; it should be remembered that the more scientific use of the small repeated *x*-ray dose now possible plays an important part in rational *x*-ray therapy. It is neither necessary, nor, indeed, indicated, that every case suitable for *x*-ray treatment, even cases of malignant disease, should be treated by the so-called method of "deep therapy."

The book under review is divided into three parts. The first, in which the illustrations are numerous and valuable, deals with the apparatus which is required, and consists of ten chapters. Of these the first section deals with high potential generators, the second with high tension voltage measurement, the third with *x*-ray tubes, and the fourth with installations. As regards tubes the author states definitely that the "electron" is the most practicable for therapeutic purposes. It is interesting to note Dr. Hirsch's statement that with respect to the protection of the operator, the patient, and those adjacent to the apparatus, nothing better can be written than the report of the *X*-ray and Radium Protection Committee of Great Britain.

The second part of the book contains two sections, of which the first is devoted to the question of the measurement of the quality of the radiations, and the second to the measurement of their intensity. All the different methods are explained and come under critical review. Many illustrations and tables are of great assistance in making the letterpress quite clear. The third part has four sections. Dosage, practical and theoretical, accounts for the first two; in the third the clinical aspect is dealt with; and the last, after an introductory chapter, contains particulars of the dosage formulae and tables of Dr. HOLZKNECHT, the professor of roentgenology at Vienna.

It will be seen that this book is not based upon a narrative of various cases treated by *x* rays in which the methods of treatment and the results obtained are related, but is a clear and scientific study of the methods of production of *x* rays, the apparatus used, and the principles upon which modern methods are based and carried out.

Well and clearly written, beautifully illustrated, exceed-

[3] *The Principles and Practice of Roentgen Therapy.* By I. Seth Hirsch, M.D. With Dosage Formulae and Dosage Table by Guido Holzknecht, M.D. New York: American *X*-Ray Publishing Company; London: H. K. Lewis and Co., Ltd. 1925. (Cr. 4to, pp. xviii + 359; 300 figures, 57 tables. £3 net.)

ingly well presented, it is a standard work on the subject which will become indispensable to any radiologist who is practising x-ray therapy.

EDUCATIONAL PSYCHOLOGY.

THE interest displayed in psychology by teachers of the young has both advantages and disadvantages. So far as it enables them to understand their charges, to enter into their minds, and recall something of their own memory of the processes of mentality at an early age, the study of psychology is all to advantage. But if it should lead them to explore the more remote and devious passages mapped out by some of the more revolutionary of modern psychologists it is doubtful if it will be to the advantage of either the teachers or their charges. Some of the ramifications of modern psychology are calculated to have unhappy effects upon the minds of youthful teachers, and the majority of teachers are young. Youthful minds are very open to suggestion, and the ultra-sexual bias of some psychologists is likely to have effects upon these young minds which may bring about the very conclusions of these theorists. With such fears in mind it is not easy to recommend a useful work on psychology as a suitable guide to study for young educationists. It is therefore with pleasure that we read the volume written by Dr. GODFREY H. THOMSON, entitled *Instinct, Intelligence, and Character*.[4] Dr. Thomson is professor of education at the Armstrong College, Newcastle-upon-Tyne, and a year ago became visiting professor of education in Columbia University, New York. The lectures delivered there have become the basis of the book now under review.

It is a thoroughly good book, the product of a well read, thoughtful, and well balanced mind; the author knows so clearly what he wishes to say that he says it simply and forcefully. His general plan has been to show how man's mind has grown out of the animal mind. Out of instinctive behaviour grows the beginning of reason, as the reactions grow less inevitable. Evolution creates out of this an animal which replaces some of the behaviour by substitutes which save time. Imagery, and then symbols unlike the actual behaviour, come to replace it still more subtly; words bring with them the dangers of parrot-learning as well as the powers of abstract thought. The educational implications of this way of thinking are that we should recognize the trial and error aspect of creative thought, and provide for the increasing abstraction in the materials. We should provide opportunities for problems to arise, encourage the widest variations in the solutions offered, and should insist on ruthless rejections after trial.

This is a dry summary of a most interesting thesis, but it is a fair indication of the trend of the best thought in education, one that provides for the natural elasticity of fresh minds.

ESSENTIALS OF INFANT FEEDING.

THE highest commendation can be given to a little book entitled *Essentials of Infant Feeding*[5] by Dr. E. A. BARTON, medical officer to the Child Welfare Department, University College. He modestly claims in the preface that the book is no more "than a collection of those facts which it is essential that a student should know if he is to profit by attendance on a hospital infant clinic." It is at the present time compulsory for students to have some slight knowledge of the manner of life of infants. Very few students there are, however, who are sufficiently philosophical to take the long view expressed in the adage "Prevention is better than cure." The operating theatre would be crowded when a Caesarean section is performed, but a very small percentage of these students is found to attend the infant clinic in order to observe the regulation of a normal infant's life. Yet, how many Caesarean sections is the average practitioner called upon to perform compared with the number of healthy or mildly ailing babies for whom his advice will be asked? Possibly the blame for this lack of interest in the normal infant lies at the door of the infant dietitians, whose dogmata and formulae have become so complicated and so unpractical, not only for the student's memory, but for the mother's.

Hence it is that such a book as this will be heartily welcomed, read, and digested by practitioners and students alike. It is a clear, explanatory survey of the present teaching on the subject. There is an entire absence of dogmatic statements, and there is no particular reference to the various schools of teaching on infant feeding.

Fortunately, in the present decade, it is more readily recognized that the feeding of infants is important, and the practitioner who advises a mother "to put it on milk and water," without giving exact quantities, modifications, and times of feeding, is becoming more and more rare. Nevertheless, those doctors who have acquired such accurate and detailed knowledge as is necessary for dealing with infants have won their experience only at the cost of considerable effort, and much expenditure of time and patience.

In this little book of 80 pages will be found every fact of importance in infant feeding. The condensation of the subject-matter into paragraphs with clear headings makes for easy reading and rapid reference. We confidently recommend this excellent book to every practitioner and student.

LABORATORY DIAGNOSIS.

VOLUME XXVII[6] of the French series of books on medical pathology and applied therapeutics is written by Professor PRUVOST, with an introduction by Professor LETULLE, and deals with common laboratory methods employed in the diagnosis of disease. With the multiplication of biochemical, bacteriological, and histological tests the subject of laboratory diagnosis has grown to be a separate branch of pathology, or, more exactly, a stout limb of the tree of pathological knowledge which is continually budding fresh branches. The practising physician, looking to the laboratory for help in the diagnosis of disease, often needs counsel in the interpretation of the pathologists' reports; or he may wish to know what particular tests are likely to be of service in a particular case. The authors of this book have written with these thoughts before them, but, carried away with their subject, have produced a book which, as it stands, is more likely to be of value to the laboratory worker himself than to the clinician. Its pages are closely packed with detail of technical tests, the descriptions gaining an added value from the intensive fund of practical experience on which the authors call. They have handled their subject in a sensible fashion, distinguishing between specific and non-specific methods of analysis. Non-specific tests only reveal lesions or disordered functions of organs; examinations of blood, urine, and sputum are commonly non-specific tests. Specific tests are such as disclose the actual nature of the disease or its etiology—for example, the search for pathogenic bacteria or protozoa. Working on this plan the book has been divided into two parts: in the first are described tests which are useful in the examination of gastric secretion, sputum, cerebro-spinal fluid, pus, blood, faeces, and urine; in the second the authors deal in alphabetical order with the army of bacteria, protozoa, and worms which attack mankind. The book is liberally illustrated with 168 figures and 12 coloured plates.

The little book by Dr. J. A. KOLMER and Dr. F. BOERNER on *Laboratory Diagnostic Methods*[7] is a successor to the popular *Manual on Clinical Pathology* by Pepper and Klaer, which apparently is no longer obtainable. Drs. Kolmer and Boerner have adopted the style of their predecessors and written a book which describes the technique of various laboratory tests without any discussion of their value,

[4] *Instinct, Intelligence, and Character: An Educational Psychology.* By Godfrey H. Thomson, Ph.D., D.Sc. London: George Allen and Unwin, Ltd.; New York: Longmans, Green and Co. 1925. (Demy 8vo, pp. 282; illustrated. 10s. 6d. net.)

[5] *Essentials of Infant Feeding.* By E. A. Barton. London: H. K. Lewis and Co., Ltd. 1925. (Cr. 8vo, pp. viii + 80. 3s. 6d. net.)

[6] Traité de Pathologie Médicale et de Thérapeutique Appliquée. Tome XXVII: *Diagnostics de Laboratoire.* I: *Méthodes Usuelles de Laboratoire appliquées au Diagnostic des Malades.* Par les Professeurs Letulle et P. Pruvost. Paris: A. Maloine et Fils. 1924. (6 × 8½, pp. 730; 168 figures, 12 coloured plates. Fr. 60.)

[7] *Laboratory Diagnostic Methods.* By John A. Kolmer and Fred. Boerner. New York and London: D. Appleton and Co. 1925. (Demy 8vo, pp. xxi + 338. 10s. 6d. net.)

limitation, or clinical applications in the diagnosis and treatment of disease. It has no illustrations. Every alternate page is blank, presumably so that the student may fill in notes on the tests mentioned or add others found serviceable. No doubt this will be a useful guide to the students who work under the direction of the authors, but it is not the sort of book for a beginner who is not receiving guidance from an experienced pathologist. The four sections into which the book is divided deal successively with clinical, pathological, bacteriological, serological, and blood chemistry methods. Usually only one method of performing a particular test is given, and not infrequently that one method does not happen to be the favourite in this country; for instance, Jensen's modification of Gram's stain, Leishman's stain, and Maclean's methods for blood sugar estimation are not mentioned.

FRENCH MEDICAL YEARBOOKS.

THERE is a pathetic interest in the fifth issue of the *Année Thérapeutique* (1924).[8] On November 14th its author, Dr. CHEINISSE, left the unfinished preface on his desk, and within three hours met with an accident which ended his life. His son has published the work as it then stood, though two or three chapters had not been finally revised. The book is divided into two sections, both arranged alphabetically; the first deals with diseases and symptoms, the second with technical methods. It is a summary of work in the treatment of disease recorded in many countries. The striking feature in all these records is the use of the syringe, a practice which must be even more prevalent abroad than in the home of vaccine therapy. Thus, there are descriptions of intrahepatic injections of emetine for amoebic abscess of the liver; injections of insulin and glucose for pre- and post-operative acidosis; intra-articular injections of sodium iodide for syphilitic arthropathies; intrajugular injections for inefficiency of the right ventricle; and intraumbilical injections of adrenaline for asphyxia neonatorum, and injections of water into the umbilical cord for retained placenta. In the technical section Dr. Cheinisse called attention to the report of a committee of the American Medical Association on the dangers of local anaesthesia. Though there is a natural disinclination to publish cases of mishap, the committee collected forty-three cases of death following local anaesthesia, and found that in many of them the supposed diagnosis of status lymphaticus was not supported by facts. The exsanguination-transfusion experiments and practice of Bruce Robertson are described in their application to the toxaemia of extensive burns, to erysipelas of the newly born, to acute intestinal intoxication, malignant scarlet fever, and septicaemia. Dr. Cheinisse mentions very few English writers, but alludes to a warning to surgeons by Sir James Mackenzie that they may not have sufficient knowledge of angina pectoris to justify them in resecting the depressor nerve or the sympathetic for the treatment of this disease.

The *Précis de Thérapeutique*,[9] the latest number of the French series Bibliothèque du Doctorat en Médecine, has been compiled by Professor PAUL CARNOT and DRS. F. RATHERY and P. HARVIER. It is based on the lectures delivered by Dr. Carnot, professor of therapeutics in the University of Paris, and covers the course prescribed by the university syllabus. It is divided into three sections, the first of which deals with prescription writing and tabulates the principal remedies used in medicine and the manner in which they may be administered; it closes with some general remarks on doses and incompatibilities. The authors deal next with general therapeutics, classify available medicinal substances into different groups according to their manner of action, and in each group discuss the value and method of employment of each substance in various diseases. The second section of the book, which occupies much less space, concerns itself with dietetic treatment of diseases such as diabetes, gout, and rheumatism. The third section, which deals with glandular treatment, is included in the last seventy pages. This book, written by experienced teachers in the University of Paris, is likely to be valuable to the French medical student.

The fourth issue of *L'Année médicale pratique*,[10] edited by Dr. CAMILLE LIAN, supported by a staff of thirty-three contributors, contains in alphabetical form a concise account of the principal contributions to medical literature in the widest sense of the term during the past year. A new feature of the present issue is a review of Swiss publications by a committee composed of Professor Roch of Geneva and his two assistants. We learn that similar committees are being formed in Belgium, Canada, the Argentine, and Brazil for the review of the literature of these countries in the next issue.

NOTES ON BOOKS.

IN his little book entitled *Resistance to Disease*[11] Dr. HARRY MERRALL maintains that the mucous membrane of the nasopharynx constitutes the first line of defence against disease, the second and third being formed by the lymphoid tissue lower down in the alimentary canal and the thyroid gland respectively. He regards adenoids merely as an expression of the overwork of the defensive organs in the nasopharynx, and urges that in operations for enlarged tonsils and adenoids the affected portion only of the glands should be removed. Restoration of a healthy condition of the naso-pharyngeal mucosa—which, according to the author, can best be effected by local applications of iodine—constitutes the most effective means of preventing recurrent colds as well as more serious affections, especially intestinal toxaemia and constitutional disorders, including cancer.

Professor OGDEN has produced a book on *Hearing*[12] which he hopes will be helpful to the teacher, the musician, the linguist, and the medical practitioner, especially if the latter be an otologist. It will, however, probably appeal still more to the psychologist and physiologist. The author begins by discussing the physics of sound, the physiology and the psychology of hearing, and the appreciation of music and language from every point of view; he returns to different aspects of these matters in later chapters in a manner which is rather bewildering. The main theme is the psychology of hearing, and the author has gathered together a vast amount of information hitherto scattered in articles and monographs; he has provided also an excellent bibliography. It is unfortunate that only too often the pleonasms and truisms beloved of the psychologist obscure the meaning, which can only be dimly discerned in a cloud of verbiage. Thus the difficulties of a subject in itself complicated and frequently lacking precision are intensified. The accounts of the anatomy of the ear and of the theories of hearing are not complete; the author is more informing when discussing the sensation of tone and its various attributes. A chapter is devoted to vocables. The exact meaning of this term is not made clear, but it appears here to be applied to any vocal sound. The best part of the book is that which deals with the principles and teaching of music; here there is much of value about speech and music in education and tests of musical talent. The writer seems more in his own province on these topics. The scope of the book is wide, and perhaps too much has been attempted, but it improves vastly as it goes on.

The National League for Health, Maternity, and Child Welfare has issued a pamphlet containing outline syllabuses of *Health Talks*[13] to mothers. Drawn up by Miss MIRIAM SHEWELL, superintendent of an infant welfare centre in Birmingham, after years of experience in giving talks to mothers, she has condensed her informal lectures into the

[8] *L'Année Thérapeutique: Médications et Procédés Nouveaux.* Par le Dr. L. Cheinisse. Cinquième année, 1924. Paris: Masson et Cie. 1925. (5½ × 7¾, pp. 185. Fr. 8.)

[9] *Précis de Thérapeutique.* Tome I: *Art de Formuler Médications Générales.* Par Paul Carnot, F. Rathery, et P. Harvier. Bibliothèque du Doctorat en Médecine. Paris: J. B. Baillière et Fils. 1925. (Post 8vo, pp. xvi + 640. Paper cover, Fr. 32; bound, Fr. 38.)

[10] *L'Année médicale pratique* (Médecine, Chirurgie, Obstétrique, Spécialités, Questions professionnelles). Publiée sous la direction du Dr. Camille Lian. Quatrième année. Paris: René Lépine. 1925. (Fcap. 8vo, pp. xviii + 527. Fr. 20.)

[11] *Resistance to Disease.* By Harry Merrall, M.B., Ch.B. London: Williams and Norgate, Ltd. 1925. (Cr. 8vo, pp. xiii + 179. 10s. 6d. net.)

[12] *Hearing.* By Robert Morris Ogden, Professor of Education in Cornell University. London: Jonathan Cape. 1924. (Demy 8vo, pp. xiii + 351; 18 figures. 15s. net.)

[13] *Health Talks.* By Miss Miriam Shewell. London: The National League for Health, Maternity, and Child Welfare. 1925. (Demy 8vo, pp. 16. 6d.)

outlines found in this book. The talks are divided into three series of twelve. The first series is for young married women and expectant mothers, and deals with the growth of the foetus and ante-natal care generally; the second is for mothers with young children, and details the daily routine with hints on food and clothing, on habits and on character building. The final series is limited to mothers who have attended the first two courses, as it deals with the causation, prevention, and nursing of simple diseases in children. Each syllabus has headings, which, although very brief, are quite sufficiently explanatory. The Ministry of Health requires all health visitors to give periodic talks to mothers, and this pamphlet supplies a working basis for such talks.

MEDICAL AND SURGICAL APPLIANCES.

Automatic Skin Forceps.

MR. E. DRYBROUGH-SMITH, F.R.C.S.Edin. (St. Leonards-on-Sea), writes: With ordinary skin forceps much time is wasted in approximating and everting the edges when suturing wounds, especially when operating without an assistant. The forceps depicted are designed to save time, and permit the surgeon to use both his hands to thread the needle, and pass and tie the suture when operating without an assistant. They are made of rustless steel and have a strong spring which firmly approximates the blades—thus the skin edges are automatically held tightly together; the teeth are long and firmly grip into the skin, at the same time everting its edges. In applying the forceps both edges of the skin are gripped simultaneously, the needle is passed just distal to the ends of the blades, and the suture tied before removing the forceps. Messrs. Down Bros., Ltd., 21 and 23, St. Thomas's Street, S.E.1, have kindly undertaken to make the forceps.

THE UNITED STATES ARMY MEDICAL REPORT.

THE annual report of the Surgeon-General of the United States Army for the year 1924[1] maintains its reputation for carefully collected facts and lucid explanation of its statistical data. The vital statistics are for the calendar year 1923, but the general remarks cover the activities of the medical department for the fiscal year ending June 30th, 1924. In his letter of transmission to the Secretary of War the Surgeon-General, Major-General M. W. Ireland, refers specially to the important developments which have taken place in the formation of a reserve corps of medical officers, in enrolling and training the medical personnel of the National Guard, and in the training of the officers and men of the regular Army Medical Corps.

The medical department of the United States Army differs from that of the British Army in that it includes the veterinary as well as the dental and nursing services. The new reserve corps is intended to provide reserves, in the event of the mobilization of the man-power of the nation, for all these services from civilian sources. Up to June 30th, 1924, 7,559 were enrolled for medical, 3,055 for dental, 865 for veterinary, 880 for administrative, and 416 for sanitary services; 40,636 Red Cross nurses formed a reserve for the Army Nursing Corps. The National Guard resources are distinct from this reserve, and for federal purposes is able to put in the field 166 medical detachments (regimental), 10 medical regiments, 10 collecting (bearer) companies, 32 ambulance companies, 24 hospital companies, 10 medical laboratory sections, 10 veterinary companies, and 10 service companies, with a personnel of 950 officers and 8,459 men. An interesting table on page 177 of the report gives a statement of the organized reserve units required in the event of general mobilization. The number is 917, of which 270 are general and 180 stationary hospitals. To man them 23,563 reserve officers are required; but only 3,840 have as yet been definitely assigned to units, of which there are twenty-six different classes, all of them for rearward or lines of communication and base services. They include, for example, such units as "consultants at large," "specialist groups," aviation medical laboratories, and medical supply depots. So far a complete personnel has been assigned to 3 stationary hospitals, 1 veterinary convalescent hospital, and 2 corps medical headquarters only. Many of the civil institutions throughout the country have undertaken to supply several of the units, 66 as surgical hospitals, 66 as evacuation hospitals, 126 as general hospitals, 1 as a stationary hospital, 1 as a general medical laboratory, and 1 as a veterinary general hospital.

These figures are of interest for comparison with the organized medical reserves of our own army. They are not, however, the equivalent of our Territorial Army Medical Service, which is represented more by the National Guard services of the United States, but of organized civil medical resources outside it. They represent a wide and far-seeing view of national requirements which we might do well to imitate if that were possible. It is only in our Voluntary Aid Detachment organization that we approach it.

The regular army medical officers were 46 below strength, being 939 of an authorized establishment of 985 for a mean annual strength of 130,827, exclusive of nurses and pensioners, who also come under the care of the regular Army Medical Corps. The officers of the Dental Corps numbered 155. Both medical and dental officers are considered totally insufficient in number. Only 62.8 per cent. of the medical officers were available for duty at general hospitals, camps, and laboratories, and only 71 per cent. of the dentists. The allowance of dentists is in the proportion of 1 for every 1,000 of army strength, but this proportion was determined nearly a quarter of a century ago, when the relation of dentistry to the general health was little known. The report states that at least twice the existing proportion is an urgent necessity.

General Ireland notes with satisfaction the great advance that was made during the year by the establishment in September, 1923, of an "Army Medical Center" in 110 acres of land about five miles north of Washington. This centre comprises the "Walter Reed" General Hospital, the Army Medical School, the Army School of Nursing, the Army Veterinary School, and the Army Dental School. A School of Aviation Medicine, it may be noted, also exists; it was established in New York in 1921.

The report enters into full details of the courses of instruction in the various schools and training camps for regular, National Guard, and reserve corps. Among the methods employed are medical correspondence courses for the officers of the reserve corps—a method which is at present occupying the attention of writers in the *Journal of the Royal Army Medical Corps*. The courses cover about 200 hours of work each, and deal with regimental duties, military organization, tactics, hospitalization, sanitation, first aid, military law, and other subjects. Tests and problems are sent out to the officers concerned, who in their turn submit their solution of them to the corps area instructor. An advanced correspondence course of thirty-nine hours' work deals with special subjects for reserve officers of the higher grades.

As regards the vital statistics, there is not much of special interest. Officers and men of all grades and colours seem to be wonderfully healthy, whether serving in the United States, the Philippines, Hawaii, Panama, or China. The only remarkable feature is the extent of invaliding on account of nervous diseases; 40.9 per cent. of the officers and men discharged on account of medical unfitness were invalided on account of these, while suicide was the cause of 9 per cent. of the deaths. A large proportion of the deaths—17.7 per cent.—was due to automobile, motor-cycle, aeroplane, and balloon accidents, or to drowning. The admission rate for venereal disease was comparatively low—60 per 1,000 of strength; it is the lowest rate for any of the previous ten years. Prophylactic packets are issued and prophylactic stations maintained in many of the garrisons, if not in all. The admissions for alcoholism, on the other hand, although lower than in 1922, were higher than in any other year of the decade. The report states that this was probably due to the injurious character of the illicit liquor consumed in recent years. Admissions for drug addiction were higher than in 1922, but compared favourably with other years.

[1] *Annual Report of the Surgeon-General U.S. Army, 1924.* Washington: Government Printing Office. 1924. (8vo, pp. xiv + 435; 166 tables in text, 9 appendix tables, and 45 figures. Price 60 cents in Washington.)

British Medical Journal.

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THE TREATMENT OF FRACTURES.

MANY lives and limbs were needlessly sacrificed in the earlier part of the late war, before the treatment of gunshot fractures was reformed, and the mortality of cases of fractured femur—to take only one class of injury—was reduced from 80 to 20 per cent. The knowledge of the good results obtained in the special surgical hospitals led many of us to hope that the lessons taught by Sir Robert Jones, Major Meurice Sinclair, Sir Henry Gray, and others would not be wasted, but would be applied effectively by those responsible for the treatment of injuries in civil life. This hope was expressed during the last year of the war by Mr. Muirhead Little in a presidential address to the members of the British Orthopaedic Association,[1] in which he called attention to the defects of the then existing system, and pointed out that it was possible under it for the pupils of some metropolitan schools of medicine to become qualified to practise without having had any practical instruction in the treatment of some of the most disabling injuries to which the human frame is liable. He expressed the view that the treatment of fractures should be transferred from the general surgeons, who had neither time nor inclination to carry it out properly, to the orthopaedic departments of the hospitals. Unfortunately, as the lecture delivered by Sir Robert Jones on May 12th (published at page 909) will show, the hopes entertained nearly seven years ago were doomed to disappointment. The lecturer, who has had unrivalled opportunities of knowing the present state of things, tells us that "the majority of fractures treated by conservative or non-operative methods are badly handled, with resultant disability, and expert operative aid, if desired, is not always at hand." He describes in graphic terms the usual course of events in the treatment of a fracture in the casualty department of a great general hospital and in the wards of those institutions which consent, more or less reluctantly, to admit fracture cases as in-patients. Few, we believe, will be found to deny the general accuracy of this description, or to assert that the present state of things is one with which we ought to be satisfied. It was a realization of the poor functional results obtained in treating fractures among the industrial classes that led some enterprising surgeons to advocate open operation and metallic fixation in simple fractures. These procedures have great value in certain cases, but in most cases better results can be attained without them, and they have the grave drawback of being generally inapplicable except in very well equipped hospitals.

The proper treatment of fractures with a view to the attainment of the best possible functional results needs much more time and attention to the details of after-treatment than can be given in most general hospitals as at present organized. The abdominal surgeon—and most surgeons to general hospitals must be so classed—accustomed to discharge his cases after two or three weeks or even less, does not want to have his beds occupied by cases in which the process of recovery is inevitably prolonged, and his time is so fully taken up that he could not spare enough of it for the treatment of difficult cases of fracture, even if he had additional beds. Yet there is generally no skilled and experienced junior officer to whom he could delegate the work with confidence.

Sir Robert Jones, well knowing that it is useless to denounce a wrong without at the same time pointing out a remedy, has made very definite recommendations for reform. They are, perhaps, rather drastic, but may be taken as suggesting the ideal at which we should aim. The years since 1918 have not been wasted in all countries. In the United States, where industrial and transport injuries are so numerous, the treatment of fractures has been more specialized than it has been in Europe, and with excellent results.

We review in this issue (p. 928) an important book on dislocations and fractures by Dr. Wilson of Boston (Massachusetts) and Mr. Cochrane of Edinburgh, in the preface to which there is an instructive account of the special department of the Massachusetts General Hospital devoted to the treatment of fractures. This fracture service, as it is called, is staffed by six surgeons, of whom four are drawn from the two ordinary surgical services and two from the orthopaedic department. Since 1920, when this service was established, it has worked with complete harmony and success, and a remarkable consensus of opinion has been reached on the principles of practice. What is possible in New England might at least be attempted in Great Britain, and we trust that the appeal made by Sir Robert Jones will be answered in a practical manner, with the result that much suffering, crippling deformity, and economic waste will be avoided.

A century ago Sir Astley Cooper, who was one of the foremost surgeons in the world, did not disdain to devote much of his ability and experience to the treatment of fractures and dislocations. It will not be very creditable to his countrymen of to-day if they do not seriously set to work to restore the practice of this branch of surgery in Great Britain to the same relatively high position as that in which he left it.

[1] BRITISH MEDICAL JOURNAL, November 30th, 1918, p. 604.

MEDICAL EDUCATION: TWO LAY VIEWS.

WITHIN the last few months two books by Americans of great ability have been published, each of which is mainly devoted to problems of medical education. One is a novel, Mr. Sinclair Lewis's *Martin Arrowsmith*,[1] the other a systematic treatise by Mr. Abraham Flexner.[2] Both authors are educated laymen, but their equipments for the task are different. Mr. Flexner has been for many years in close touch with the organization of medical research and education, and has had a large personal share in important developments of both. Mr. Sinclair Lewis is a man of letters who, until he conceived the idea of writing this tale, perhaps had no more intimate knowledge of medical education and research than any other cultivated man. Mr. Flexner's conclusions, then, are the product of many years' study, but, as a necessary defect of the quality, coloured by the fact that he has been an actor in as well as a spectator of the events he describes. Mr. Lewis's conclusions are based upon an experience much shorter and much less intimate, but more intensely realized, and, being expressed in terms of human personality by a skilful artist, far more vividly presented than those of Mr. Flexner. It would be strange indeed if two authors

[1] Published by Jonathan Cape, Ltd. 7s. 6d. net.
[2] *Medical Education: A Comparative Study.* New York: Macmillan Company. 1925. (Pp. 334. 2.50 dollars.)

so differently equipped reached identical conclusions; yet upon a number of important points they do reach the same conclusions; we shall be mainly concerned with these. Mr. Lewis has written the Odyssey of a lad endowed with intellectual ability and imagination who passes from the office of a drunken general practitioner to the medical faculty of a university, then, through general practice and the municipal public health service, into an institute of medical research. We leave him, if not among "barren crags," at least in the wilderness.

We shall not dwell upon the merits of Mr. Lewis's book as a piece of literary art, but one merit must be noticed because it is relevant to our limited argument. He sustains the thesis that the American medical student is, culturally, a mere barbarian, and that his professional training is machine-made and uninspired by any disinterested ideals; he further maintains that the organization of research in America is deeply tinged with a commercialism that puts power into the hands of persons as incapable of appreciating the spirit of disinterested research as is a deaf-mute of apprehending a sonata. Mr. H. G. Wells's most acrid humours never distilled such an acid as has eaten out the portraits of Dean Silva of Winnemac University, of Dr. De Witt Tubbs, director of the McGurk Institute, and of the director's favourite colleague Dr. Rippleton Holabird. But Mr. Lewis is a more accomplished artist than Mr. Wells because he can both see and dramatize the strong points of the men he satirizes. Dean Silva and Dr. Tubbs cut poor figures in comparison with the noble old Gottlieb as witnesses of scientific truth; they are mere wordy quacks. But in the sick-room it is not Gottlieb, but Silva, who is, and is made to appear as, the strong man. As director of a research institute Gottlieb fails, and fails miserably, in the very matters wherein he might have been expected to be Dr. Tubbs's superior; under Gottlieb there is not less, but much more, vulgar intrigue than under Tubbs; Tubbs, with all his intellectual dishonesty and desire for "stunts," is a better director than Gottlieb.

With Mr. Lewis's indictment of commercialized research we shall not deal, but that it is not wholly unsupported by the writer whose knowledge of organized research is unrivalled the following sentences from Mr. Flexner will show: "The speed and ease with which, in favoured spots, a complete and brilliant material transformation has been effected in the United States is not, perhaps, wholly without danger. Kraepelin has suggested that, up to a certain point, equipment improves efficiency; beyond, increase of equipment may be at the expense of the higher efficiency. . . . Mediocrity, to be candid, is more dependent than genius." Passing, then, to the other counts, both Mr. Lewis and Mr. Flexner agree that the American medical student is poorly educated. Mr. Flexner extends the same criticism to England. He finds that, while on the continent of Europe the medical student has "received a severe and excellent general education"—that he is "respectably educated in the technical sense of the term"—"in Great Britain and America no such selection has been made and no such intellectual training has been generally procured, though the medical student may be a more wholesome human being." As an indication he points to the very low standard of attainment in the use of their native tongue reached by American medical students, and even by many of their teachers—a criticism which, as most readers and all editors of medical journals know, is applicable, though with perhaps less force, on this side of the Atlantic. Although, from the use of the word "selection" in the extract we have cited, it is evident that Mr. Flexner does not ignore all factors other than the national educational system, we think he may overrate the importance of the differences of system between the countries compared. We do not know whether it is still true that the proportion of qualified medical men per 1,000 of population is higher in England, and very much higher in America, than in France or Germany; but, even if it is not, there are social and historical reasons why the attraction of the medical profession for those who have undergone a really severe intellectual training—have been liberally educated, in the ordinary loose sense of the word—should be greater on the Continent than in the English-speaking countries.

Passing to the content and method of medical education itself, Mr. Flexner sometimes uses language as vivacious as that of Mr. Lewis satirizing Winnemac. Mr. Flexner, not Mr. Lewis, writes of the "inferior student, who had by main force to be held with his nose to the grindstone and in whose interest the American curriculum was invented." In his judgement of European systems, Mr. Flexner ranges us in a different order from that he found appropriate for pre-professional training. While, with some minor limitations, he ranked France first in the production of generally educated youths, he regards her medical schools as the least efficient of any—much inferior to the English and the better American schools. The French, in fact, are the worst, as we are the best, exponents of the "natural" system of training; a system which its admirers would describe as the practical method, the method emphasizing the fact that medicine is an art as well as a science, which its critics deride as the method adopted by Mr. Wackford Squeers—"C-l-e-a-n, clean, verb active, to make bright, to scour. W-i-n, win, d-e-r, der, winder, a casement. When the boy knows this out of the book, he goes and does it." To imitate an epigram of Matthew Arnold, Mr. Flexner's view is that the German medical school has plenty of science but too little art, the French school so little science that the art is not learned, the English school too little science but very admirable art.

It is not very easy to cite a representative passage, for Mr. Flexner is a cautious writer and not always self-consistent, but perhaps the following is typical: "The merits of the British system are great and obvious. They are fully appreciated by the British themselves and not unappreciated in other countries. In effect, the British student learns clinical medicine as an intelligent apprentice—an apprentice, I mean, who, in virtue of previous training, is soon capable of orderly procedure in the analysis of symptoms, the arrangement of data, and the drawing of tentative conclusions. Aside from the inadequate time usually given by the English chief to his teaching and the excessive responsibility laid upon the juniors, the educational defect lies, not in the system as such, but in the spirit in which it continues to be administered—namely, its short-sighted practicality. It is, indeed, as I have previously noted, remarkable how little British physiology has yet achieved in changing the spirit of British medicine. Annually, for years, a group, well trained in physiology at Cambridge, Oxford, and University College, London, enter the hospital schools and with rare exceptions soon settle down to clinical study at a level much below the level of their physiological training. They are, indeed, lost in the

mass of students with inferior preparation in whom they are merged. Listening to a succession of bedside expositions, not infrequently quite chatty in substance and tone, one is struck by the positive note; this, that, or the other indication is pointed out—rarely is the unknown, the problematic, the profounder question, the historic background alluded to. . . . As contrasted with the infinite complexities of the actual process, whether of health or disease, bedside teaching of this type enormously over-simplifies. It hardly penetrates the surface, and is apparently unaware of the fundamental activities involved in the phenomena of life." We have quoted this passage at length because it brings out very clearly both the weak points and the strong points of Mr. Flexner's criticism. The strong point is that too little provision is made in England for the minority, the small minority, of undergraduate students who have been liberally educated and could profit by the type of instruction given by a professor of the German model. The weak point is that in teaching adolescents who have undergone but little serious intellectual discipline—and that is the lot of nine clinicians out of ten—the instructor who ceases to be chatty and positive, who does advert to the historic background, the infinite complexities, of Mr. Flexner's peroration, will harm both his listeners and himself. They will snatch at ignorance-concealing phrases, he will degenerate into an orator.

There is surely one weakness of the present generation which a radical change of system along the lines which Mr. Flexner seems to advocate might accentuate. It is a slovenly omniscience, a lack of courage to confess that one is too ignorant of a subject even to criticize it. The old surgeon who, seeing his medical colleague enter the wards, turned to his dressers and said, "Thank God, gentlemen, I know nothing of medicine," has few successors. Mr. Flexner does realize this, for he has written another passage which seems to us the truest and finest in his book: "The remedy is to do less for the student rather than to do more for him. But when the curriculum has been simplified, defects and disappointments will not disappear; these, due largely to human frailty, cannot be exorcised by jugglery. Far more wholesome would it be to admit once for all the *difficulty* of *learning* medicine, and the *impossibility* of *teaching* it." That passage should be learned by heart by all students, teachers, organizers, patrons, and after-dinner orators. That Hippocrates made a similar remark some time ago does not detract from its immediate practical importance.

JOHN KEATS, MEDICAL STUDENT.

THE medical career of John Keats has been the subject of many writings, but Sir William Hale-White, in the Annual Oration before the Medical Society of London on May 11th, disclosed a few facts not generally known, the result of his own researches. The house of Mr. Thomas Hammond, the surgeon of Edmonton, to whom Keats was apprenticed, is still standing (No. 7, Church Street), and has still a doctor for its tenant. Close at hand is a tiny cottage, about to be demolished, in which Keats and a fellow apprentice lived. At the end of four years' apprenticeship—that is, midsummer, 1815—Keats entered himself as a student at Guy's Hospital, with which St. Thomas's, then just across the way, was associated. Some scoundrel, said the orator, had cut out from the register at Guy's, in which all students signed their names, the signature of Keats, evidently coveting the autograph; but two other books in possession of the hospital mentioned the poet, one of them in an entry as follows: "October 1st, 1815. John Keats, No. 57, six months, place of education, Mr. Thomas Hammond, Edmonton, fee, £1 2s.," while the other recorded the fact that he had become a dresser to Mr. Lucas. Sir William Hale-White had studied the student's notebook of Keats, which is in the possession of the Hampstead Public Library, and had been permitted to make a photographic copy of each of its twenty-eight pages. On each left-hand page were notes on descriptive anatomy, well written and spaced, evidently set down at leisure, while each right-hand page was filled with closely written, hurried memoranda, many of the words misspelt or abbreviated—the notes of a student taking down a lecture. The notes of eleven lectures on physiology appeared in this fashion. A careful study showed that both the leisurely and the hurried notes were in the same handwriting, and a comparison with the letters of Keats proved that the handwriting was that of the author of *Endymion*. In one place some flowers were scrawled on the margin of the lecture note, as though Keats's attention had wandered from the theatre to those "realms of gold" of which he had already written. Keats had said once how during a lecture a sunbeam came into the room, and "with it a whole troop of creatures floating in the ray; and I was off with them to Oberon and fairyland." Sir William Hale-White read a number of passages from these old notes. There were many references—six in the anatomical part and fourteen in the physiological—to "Mr. C.": "Mr. C., by an experiment on a dog, showed that arterial and venous blood had the same temperature"; "Mr. C.'s opinion is that it (blood) is prevented from coagulating in the body by nervous energy"; "the lowest pulse Mr. C. . . . had ever heard of was in general 20, sometimes 28, at others as low as 14"; "Mr. C. had seen a dissection of the nerves in a man who had tic doloreux." Strangely enough, there were four men at that time lecturing at Guy's whose names began with "C," but a process of elimination showed that Keats's lecturer must have been Astley Cooper, and this was clinched by a reference to Cooper's lectures, published in 1824, many of the points and illustrations in which coincided with the rough notes taken by Keats in the lecture theatre in 1815-16. It is rather unfair to judge the merits of a lecture from a student's notebook, but Sir William Hale-White said that even on this test it was evident that the lectures were very good indeed, the facts well and clearly put, and the teaching extremely practical. He went on to give some account of the curriculum undertaken by the students attached to Guy's and St. Thomas's in the early years of the last century, the almost incredible rough-and-tumble of the operating theatre, and the personalities of the various physicians and surgeons, of whom Astley Cooper had by far the largest following. He thought it greatly to Astley Cooper's credit that, busy and popular man as he was, he noticed "little Keats," who was not his own dresser, and placed him under the special care of George Cooper, a relative of his. Keats lodged close to the hospital, for part of the time in a house in Dean Street, a street now cut through by the railway, though a portion of it remains under the name of Stainer Street. Here, among the "jumbled heap of murky dwellings," Keats wrote some of his poetry, he saw visions of Arcady in Southwark, and from his favourite window-seat coined that imperishable line, "A thing of beauty is a joy for ever." Keats never practised medicine, though in his letters there are many allusions to the possibility of his doing so; but he obtained the licence of the Apothecaries' Society of London, presenting himself for examination on July 25th, 1816, and passing with credit. Sir William Hale-White was fortunate enough to discover in the *London Medical Repository* of about that date a list of certified apothecaries who had just received their passes, and among them was the name of John Keats of Edmonton. But there were two persons in the

body of Keats—one of them the diligent student, sufficiently outstanding to attract the attention of Sir Astley Cooper, and popular among his fellow students, by whom he was known as "little Keats," and the other the poet; and the poet gained the day. Keats threw aside the lancet for what he called "the living pleasures of the bard."

THE COMMON GROUND OF LAW AND MEDICINE.

LORD JUSTICE ATKIN was the speaker at the annual meeting—the 151st—of the Middlesex Hospital Medical Society on May 12th, and explored what he called "the dusty purlieus of a lawyer's mind" on the subject of law and medicine. Touching lightly on the history of the two professions, he remarked on the early embodiment of sanitary measures in legal codes, and said that perhaps the most powerful legislators of history had been Moses, Mahomet (both of whom were sanitarians), and the chief medical officer of the Ministry of Health. The professions had proceeded together, but not always at the same pace. While it might be said that the law had exhibited a fairly constant development from later Roman times, medicine had stood still for many centuries after Galen, and, indeed, until about fifty years ago medicine remained more or less an empirical art based upon incomplete experience and upon hypotheses which were to a large extent untrue. In recent times medicine had made enormous advances and had become a science, which could hardly yet be said of law, for law was subject to variation at the instance of legislatures as well as to the fallible interpretations of judges. Medicine and law were working towards the analogous goals of health and justice, which had much in common. Both professions sought after truth, and both tested carefully the evidence presented to them—lawyers by a process of cross-examination, medical men by ever closer and more accurate observation assisted by elaborate instruments. Cross-examination was rather repugnant to the popular mind because it represented the application of well known and tested principles by which the ordinary man was not guided in his own particular judgements and affairs; instead of relying on what was ascertained by accurate observation, the ordinary man was guided largely by emotional preferences, prejudices, and impressions which had persisted from his youth in spite of evidence that they were erroneously based. Lord Justice Atkin believed cross-examination, properly applied, to be the most effective means of ascertaining the truth whether as to a fact or a theory. In some branches of medicine—psycho-analysis, for example—cross-examination was one of the principal arts, pursued, he did not doubt, at times with great success. That it was an art which required cultivation and practice was illustrated in the courts when some litigant conducted his own case, and failed miserably in his attempts at cross-examining the other side. The Lord Justice went on to speak of the various ways in which the two professions could assist one another, and the great range of subjects, relating to both civil and criminal law, in which the law depended upon the information given by the medical man. In civil law these subjects included such large matters as marriage, injuries, insurance, and workmen's compensation. The general attitude of the law towards the medical man was to treat him, not as an advocate or as one supporting a particular thesis for its own sake, but as himself a minister of justice, anxious to assist the court at arriving at a true conclusion. To doctors who were called upon to give evidence he would say that it was of first importance for them to make sure whether they were speaking of something which they had ascertained as a fact or were simply putting before the court their impression or theory. Many topics of interest to both professions, he continued, were still outstanding. The most important was the great question of insanity and the responsibility of the insane person for criminal acts. Medical men had not yet been able to define what they meant by insanity. The difficulty was as old as Hamlet, and the speaker was not sure that the definition of "true madness"—"nothing else but mad"—had advanced much further. But he hoped that at any rate in respect to criminal responsibility it would be considered a fair and proper thing to find irresponsibility when the crime was committed from irresistible impulse the result of a diseased mind, and he was himself awaiting the time when some legal authority would explain what the true position was in quite well authenticated cases. Another outstanding question was professional secrecy. The extreme claim for privilege probably could not be upheld. There was no protection for a medical man in respect of such matters, and the law would so remain, he had no doubt, until some doctor—might he say, some fanatical doctor?—in the witness box declared that the confidence existing between himself and his patient was as sacred to him as that between priest and penitent or lawyer and client, and that he was prepared to go to prison for the rest of his life rather than violate it. The question would then arise whether the conflicting claims could not be reconciled by something less than a complete obligation on the part of the doctor to make a disclosure when called upon. The lecturer also mentioned another question, which he said was too controversial to enlarge upon—the question whether medical men might not fairly claim to have decisions affecting professional conduct made subject to some judicial investigation, instead of being left to the decision of any tribunal which did not act upon legal principles and upon evidence which could be tested and controverted by cross-examination. That was a matter he must leave to the doctors. In conclusion, he declared that law, equally with medicine, had important preventive aspects. He was surprised and pained when, at an important medical dinner two years ago, the remark of the Lord Chief Justice that the ideal and practice of lawyers was to be peacemakers was received with derision. Lord Hewart's remark was perfectly true, however much opposed it might be to the "picture-house" view of the lawyer. Each profession had much to learn from the other, and each depended in a large measure on the other's confidence and goodwill.

METEOROLOGY AND MEDICINE.

IN the course of a communication on Indian meteorology, read before the Royal Society of Arts (Indian Section) on May 8th, Sir Gilbert T. Walker, late director of Indian observatories, mentioned the rapidly growing importance of the relation between meteorology and medicine. The meteorological department at Simla, he said, now issued warnings to the medical department of the Indian Government of the danger of sunstroke or heat apoplexy when the wet bulb temperature approached 85° F. It also collated information from various areas regarding rainfall, and was able to forecast in what parts of the Punjab malaria was likely to be serious, so that local arrangements could be made to combat the disease before it had actively developed. He showed a diagram covering several decades to illustrate the direct influence the rainfall of July and August had on the malaria of the succeeding October and November in the Punjab; in recent years this relationship had been less marked, owing, he thought, to the activity of the medical department in the administration of quinine. An attempt had been made to cool the air in the big Government buildings of India. Over the large part of India in which the air is dry during the hot weather the process of cooling by 15° would not be expensive if the necessary appliances were inserted when the buildings were being erected. On entering the cooled premises it might be desirable to wear

a light overcoat for a few minutes, but after that no difficulty would arise, and the circulation of fresh air at a moderate temperature would add considerably to the mental activity of the staff. In regions where the air was damp special arrangements would be necessary for drying it, like those generally employed in the cotton mills. In the subsequent discussion Sir Leonard Rogers repeated the well known results of his investigations into the distribution of leprosy, tuberculosis, and pneumonia in India in relation to rainfall, humidity, and winds, and also spoke of some more recent work on the incidence of small-pox. On working out the monthly figures for small-pox in India from 1877 to the present day, he found that small-pox outbreaks always occurred in the year following a year of deficient rainfall. In the case of eight different outbreaks of small-pox in Bombay, for instance, the rainfall in the year preceding the outbreak had been below the average. A great fall in the incidence of small-pox invariably occurred during the rainy season when the humidity was at its height, and Sir Leonard Rogers was of opinion that in years of exceptionally low rainfall the humidity did not rise high enough to bring about the customary decrease in small-pox, so that when the cold weather came there was, so to speak, a legacy of cases remaining to which was added the ordinary seasonal incidence, and with this as a basis an epidemic occurred.

ROYAL COMMISSION ON FOOD PRICES.

THE Royal Commission on Food Prices, appointed last December, with Sir Auckland Geddes, G.C.M.G., M.D., as chairman, has presented a first report dealing with wheat, including flour and bread, and with meat; it was issued at the end of last week. If the Commission continues its inquiry it will deal on a future occasion with other articles of diet, including milk, fish, fruit, and vegetables. The chief recommendation is to set up a food council under the Board of Trade. The council would have no executive powers, but would supervise staple food trades and give publicity to precise information as to the stocks and prices of the chief foodstuffs. It would replace the existing food department of the Board of Trade, but would be autonomous and would report to the President of the Board of Trade, who would be the Minister responsible to Parliament for its actions. The Commission attaches much importance to the autonomy of the food council, which it is desired should act as a mediator between producer, trader, and consumer in reconciling for a common end interests which it does not regard as necessarily conflicting. The council, it says, would not be a new Government department administering Acts and regulations and thereby bound at all times by precedent and the letter of the law. Nevertheless it is difficult to see in what respects it would in practice differ from a new department of Government, and this is the view expressed by Mr. Ryland in a minority report. He considers, also, that the proposal would be a definite advance towards State socialism. The council would consist of a whole-time chairman and of eleven other members, of whom one would be nominated by the Minister of Agriculture, another by the Minister of Health, and a third by the Secretary for Scotland; four members would be appointed by the President of the Board of Trade on the ground of wide business experience; and the remainder would be representatives of the consumer—two (one a man and the other a woman) nominated by the Trades Union Congress, and two (one a man and the other a woman) nominated by or on behalf of the local authorities. "The primary duty of the food council would," it is said, "be to study the situation in regard to bread and meat supplies, and to keep the public fully informed by periodical reports as to the working of these essential trades. The food council's reports should be not merely statistical compilations, but should provide a commentary on the trend of events and so far as possible explain the causes which lead to important movements in prices. For this purpose the council would need to collect information relating to production, import, consumption, and stocks, together with more precise information than is at present available with regard to wholesale and retail prices." One of the effects of giving wide publicity to this information would, the Commission hopes, be to steady prices and to stimulate supplies by timely warning if stocks showed a tendency to fall below the normal level. The Commission, however, believes that public apprehension will not be set at rest until the State has armed itself with the necessary powers to deal with antisocial action by monopolies, trusts, and combines. "But," it adds, "the danger of the abuse of monopolistic power is not confined to the food trades, and it would, in our view, be unwise to set up special machinery for dealing drastically, by the application of sanctions, with antisocial actions in these and not in other trades." The other chief recommendation of the Commission is an endorsement of that made by the Interdepartmental Committee on Meat Supplies in 1919 in favour of the compulsory registration of retail butchers. Registration would be carried out by the local authorities, but the food council would lay down the conditions of registration and the grounds on which it should be cancelled or temporarily suspended. The Commission has drafted the principles upon which the grant of registration would be determined. The first is "the due observance of public health regulations with regard to the sale of meat." The others have reference to the marking of meat and its accurate description, and the exhibition of a list of prices and charges for all classes and joints of meat on sale in the shop. The report has already come in for a good deal of criticism, for the most part foreshadowed in Mr. Ryland's minority report. The comparatively stable level of prices which existed for long periods before the war has given place to a fluctuating level of prices, so that consumers have lost their safeguard of practically customary prices. Mr. Ryland considers that the best way of meeting the difficulty is to strengthen that normal feature of the competitive system. The Ministry of Agriculture, the Board of Agriculture for Scotland, the Board of Trade, and the Ministry of Health each already has its statistical staff dealing with food matters, and Mr. Ryland advises that immediate steps should be taken for the formation of a co-ordinating committee comprising the principal officers of the statistical branches of the departments mentioned. A well informed public opinion is, in his view, the best safeguard of the interests of consumers, distributors, and producers alike; and the proposal for a co-ordinating committee would provide a basis for the formation of such opinion, and would involve practically no additional cost to the State.

THE PROSTHETIC HOSPITAL AT ROEHAMPTON.

THE new buildings of Queen Mary's Hospital at Roehampton, to which the Ministry of Pensions has transferred the patients and staff from Du Cane Road, Shepherd's Bush, were formally declared open by Queen Mary on May 6th. As was stated in the JOURNAL of April 11th, the surgical treatment of war pensioners and the fitting of artificial limbs will in future be carried on at Roehampton, and limbs will be supplied to civilians of certain classes. The Queen, who was accompanied by Princess Helena Victoria and Mrs. Baldwin, made a very thorough inspection of the whole establishment. The new wards, which have been erected on the northern side of the lawn at the back of the house, are of a pleasing appearance, owing largely to the spacious red-tiled verandahs which mask the southern gable-ends and afford open-air shelters; they will also keep the wards cool should we ever again experience

a spell of warm weather. The two operating theatres, with the necessary anaesthetizing, recovery, and sterilizing rooms, are situated at the back of the wards, with which they are connected by a corridor. They are well lighted and ventilated, and their skylights are cooled and kept clean by a flow of water over them. In addition to these new wards, which are built of brick, a number of the wooden huts which were built during the war for the accommodation of men who had undergone amputation have been redecorated and refitted for the reception of patients. The fine lawn has been somewhat encroached upon, but what remains is still of imposing proportions, and although it was necessary to sacrifice an ancient mulberry tree and, we believe, one of the smaller cedars, the beauties of the grounds and gardens are practically undiminished. The distance from the centre of London and the main railway termini is no doubt a drawback, but it will doubtless be more than balanced by the change from the now crowded and rather low-placed site at Shepherd's Bush to the purer air, nearly rural surroundings, and elevated position at Roehampton, where fogs are less frequent and of shorter duration than on lower levels, and not nearly so smoke-polluted as at Hammersmith.

ROYAL SOCIETY'S CONVERSAZIONE.

THE first conversazione of the year given by the Royal Society was held on Wednesday evening in the Society's rooms at Burlington House. Dr. A. H. Drew (Imperial Cancer Research Fund) contributed a most interesting series of microscopic slides illustrating tissue culture experiments. He demonstrated the initiation of growth in tissue culture by substances produced in damaged tissues, and also showed that differentiation in epithelial tissue was dependent on the presence of an adequate amount of connective tissue. A culture medium, the basis of which was a saline solution, was found to permit fragments of post-embryonic tissues to survive in a quiescent state for fourteen days or even longer if kept at body temperature. The addition to this medium of an extract of emulsion of kidney substance which had been incubated at body temperature for four hours started emigration and growth of the cells of the kidney (rat) within twenty-four hours. The emigrated cells appeared as a flat sheet surrounding the original central fragment of tissue. If a rapidly growing culture of connective tissue was implanted beside a kidney growth which was in this usual sheet form, the interaction of epithelium and connective tissue led to the formation of tubules resembling the normal renal tubules. Stratified squamous epithelium of the skin behaved in an analogous way, and if connective tissue was absent or only present in very small amount in the culture medium a sheet of closely packed spindle cells, resembling fibroblasts, resulted. If, however, connective tissue cells were incubated together with epithelial cells, the characteristic formation of epithelial perles was observed. This same alternation between epithelial sheet growth and tubular gland growth was also obtained with an alveolar mammary cancer of the mouse. Dr. O. Rosenheim and Dr. J. C. Drummond (National Institute of Medical Research) demonstrated a colour test for the presence of vitamin A. A brilliant ultramarine blue colour reaction is given by the fat-soluble vitamin A present in cod-liver oil and butter when arsenic chloride is added to it. Other dehydrating reagents, such as dimethyl sulphate, trichloracetic acid, benzoyl chloride, in the presence of zinc chloride give similar reactions, showing identical spectral absorption phenomena. This reaction has been used for the colorimetric determination of the growth-promoting activity of medicinal cod-liver oils and butter. Dr. H. W. Dudley and Dr. O. Rosenheim also demonstrated the peculiar crystals found in semen, known since 1865 as "Böttcher's crystals," though their presence was originally reported to the Royal Society by Leeuwenhoek in 1678. These crystals, which are composed of spermine phosphate, are not specific to semen, but have been isolated from almost all animal tissues except blood, and also from yeast. It is thought possible that the wide distribution of this salt of spermine may have some biological significance. The International Western Electric Company demonstrated an electrical stethoscope which, in addition to providing the usual facilities, enables any number of persons up to 600 to practise auscultation simultaneously. An audiometer exhibited by the company enables measurements to be made of the sensitivity of any ear by relating its "threshold of audibility" to that of an average ear, as determined by experiment on a large number of persons whose powers of hearing were normal. An artificial larynx, also shown by the firm, is intended to restore vocal powers to patients from whom the larynx has been removed so that the trachea terminates at the base of the neck. Professor W. M. Thornton exhibited a miner's electric lamp which indicates and measures firedamp. A thermal device involving the use of a platinum preparation enables the percentage of methane in the air to be both registered and measured by a very simple manipulation. Although electric lamps are widely used in coal mines, they have not hitherto been made capable of indicating or measuring firedamp. Dr. R. S. Clay and Mr. Thomas H. Court demonstrated the Lucernal microscope of Samuel Washbourn, which is 120 to 130 years old, and has the usual pyramidal wooden body; it is mounted on an elaborate collapsible mahogany stand. Mr. George H. Gabb showed a telescope bearing the name and date "Iacob Cvnigham, 1661"; it is, so far as is known, the oldest optical instrument existing in this country to which a date can confidently be ascribed. The instrument is of the curious trumpet shape characteristic of many of the smaller telescopes of that period. Other exhibits included fused quartz ware, contributed by the Thermal Syndicate, Ltd., and comprising laboratory equipment of various kinds, mercury vapour lamps, hypodermic syringes for flame sterilization, and a silica valve for naval wireless telegraphy. During the evening cinematograph demonstrations were given to illustrate the main characteristics of the Brownian motion of minute particles.

ROCKEFELLER MEDICAL FELLOWSHIPS.

THE Rockefeller Medical Fellowships for the academic year 1925-26 will shortly be awarded by the Medical Research Council, and applications should be lodged with the Council not later than June 10th, 1925. These fellowships are provided from a fund with which the Medical Research Council has been entrusted by the Rockefeller Foundation. Fellowships are awarded by the Council, in accordance with the desire of the Foundation, to graduates who have had some training in research work in the primary sciences of medicine or in clinical medicine or surgery, and are likely to profit by a period of work at a university or other chosen centre in the United States before taking up positions for higher teaching or research in the British Isles. A fellowship will have the value of not less than £350 a year for a single Fellow, with extra allowance for a married Fellow, payable monthly in advance. Travelling expenses and some other allowances will be made in addition. Full particulars and forms of application are obtainable from the Secretary, Medical Research Council, 15, York Buildings, Adelphi, London, W.C.2.

THE twelfth International Physiological Congress will be held in 1926, at Stockholm, from August 3rd to 6th. Professor Johansson will be president, Professor Liljestrand honorary secretary, and Professor Santesson honorary treasurer.

BRITISH EMPIRE EXHIBITION, 1925.

WEMBLEY EXHIBITION was reopened by the King on Saturday, May 9th, under weather conditions that were rather mixed, but were certainly less depressing than the average of last year. If some rain greeted the opening ceremony, yet the sun shone with greater warmth than was usual in 1924.

MEDICAL EXHIBITS.

The Exhibition as a whole may be summed up tersely as having become more domesticated: it is less startling than last year, but more interesting. This is exemplified, for instance, in the Medical Section, which we described in our issue of April 11th, 1925 (p. 703). Here the horrors of jungle and other tropical diseases, which were such an outstanding feature in the section of 1924, have given place in 1925 to the triumphs of therapeusis and prophylaxis. Domestic hygiene, hidden away last year in a little-frequented corner, has now expanded both in extent and interest and occupies deservedly one of the finest sites of the Government Pavilion. The historical side of medicine receives more consideration this year, and it may be added in this connexion that Messrs. Burroughs Wellcome and Co. are exhibiting a tabloid medicine chest used in the Everest expeditions of 1921, 1922, and 1924, which, after many thousand miles of travel and accidents, is still fit to do duty with a fourth expedition. The firm is also exhibiting a group of the actual medical and first-aid cases which were used by the pioneer aviators. When Blériot crossed the Channel in a monoplane in 1909 he carried with him a tabloid first-aid outfit. This, with the outfits carried by Sir John Alcock in his flight across the Atlantic, by Ross Smith from England to Australia, and by Squadron Leader Maclaren in his attempt to travel round the world, are also being exhibited, as is the case which accompanied R.34 in the first airship flight from England to America. Other exhibits include the tube of solidified ginger essence carried by Peary in his last dash to the North Pole, and the cases used by Amundsen and Scott in 1912.

PALACE OF ARTS.

The Palace of Arts at Wembley is of wide interest, representing as it does so many periods and forms of art. There is a very interesting retrospective collection of oil paintings, with examples of the work of Holbein, Reynolds, Gainsborough, Romney, Hogarth, Lawrence, Millais, Sargent, and many others. The rooms devoted to modern British art are fairly representative, though there are no really important works and many of the pictures are not quite recent. The beautiful study of two figures for "A Western Wedding" shows Orpen at his best. "A Norfolk Landscape" by Arnesby Brown, "The Lady with a Fan" by Augustus John, "The Tortoise" by William Nicholson, "The Check Shawl" by Algernon Talmage, and "A Lady in Black and White" by F. C. B. Cadell, are but a few of the delightful works which should be studied at leisure in this part of the Exhibition.

The standard of the modern prints is high, and a great many delightful woodcuts are shown. The modern illustrations are chiefly by a few of our best known illustrators, the most entertaining being the collection of caricatures by Max Beerbohm. Of the works in the Sculpture Gallery we may mention Frank Mowbray Taubman's "The Steps of Life," and Sir Hamo Thornycroft's "The Kiss." It is of special interest to have two rooms devoted respectively to Australian and South African art, and two to Canadian art. In the attractive Canadian rooms we were impressed with the freshness of style, and particularly liked "Autumn, Ottawa Valley" by Graham Norwell (lent by the National Gallery of Canada), and "Village in the Laurentian Mountains" by Clarence Gagnon. Australia is well represented, and "The Quarry" by Hans Heyson is delightful, also "Morning Sky" by J. D. Moore, and many others. The work of the South African painters seems to be rather immature, but their colours are fresh, and "Market Carts" by D. Kay and several others are pleasing.

Unfortunately some of the special rooms were not finished on private view day. The bronze "Orpheus," by J. M. Swan, is in a perfect setting in the beautiful tapestry room, whose walls are hung with tapestry designed by Burne-Jones and executed at the William Morris works (1898-99). The Basilica, though unfinished, gives a most pleasing general effect. The apse decoration this year is done by Colin Gill; J. Kerr Lawson's decorative panel in coloured paper is very effective, and so is the altar tomb designed by Frederic Etchells. Special attention might well be paid to the Applied Arts Section, as this should help the public to realize the advantage of beautiful things for ordinary use. There are many beautiful examples of pottery, metal work, hand-woven material, and other textiles. Mr. Rowley shows some of his decorative wood panels, designed by W. H. Chase. The Royal Mint shows several cases of medals, many designed by young artists, and the inn signs exhibited by Captain Kettleworth should not be overlooked. The modern jewellery is very good, and it is a pity we do not see more posters on our hoardings like those in the Poster Room.

Nova et Vetera.

"PARSON MALTHUS."

MANY writers have been praised and blamed by those who have never read a line of their works. What percentage of the teachers of clinical medicine who acclaim Hippocrates the Father of Medicine and Sydenham the English Hippocrates have read the works of either Hippocrates or Sydenham? It may be doubted whether all young graduates in biology have read the *Origin of Species*. In such instances perhaps little harm is done. Hippocrates, Sydenham, and Darwin are names indeed associated with ideas once hotly controverted, but the ashes of the fire have long been cold. Judgement was passed long ago upon the Cnidians, upon the advocates of a heating regimen in small-pox, and upon Samuel Wilberforce and St. George Mivart. On these matters second-hand information is incomplete, but unbiased. This cannot be said of Malthus's work; the controversy he provoked is still raging, while it is still true that more people praise (or blame) him than read his books.

The *Essay on Population* is not, indeed, inaccessible. It was reprinted some years ago in "Everyman's Library" with a concise and useful introduction by Mr. W. T. Layton; but, with many merits, the style is not attractive—one cannot read it for pleasure. It is hard to say precisely what is lacking; perhaps there is a certain coldness uncompensated by the satisfaction of the reader's vanity due to grappling with difficult technical investigations. There are indeed difficulties, but not on the surface; although the book is largely statistical it contains very little algebra.

Almost forty years ago the distinguished economist Dr. James Bonar published a volume of elucidations, entitled *Malthus and His Work*; this he has now reprinted with important additions, in particular a biography,[1] and the book supplies just what was wanted. It traces the development of Malthus's thought and humanizes the philosopher. Anybody who has read Dr. Bonar's volume will approach the *Essay* in a sympathetic mood and will assess its virtues and shortcomings more justly.

It is nearly a hundred years since the last edition published in its author's lifetime was printed; in that century much has happened. But living, as was Malthus, under conditions of great industrial distress following a terrible war, we ask ourselves the same questions. In 1815 there were perhaps fewer political rhetoricians proclaiming the arrival of a new heaven upon earth than in 1918; nobody, we think, said anything about providing homes for heroes; nobody pretended that a peace was going to be made upon any newer or nobler principle than that of getting as much for oneself as one could; certainly nobody supposed that the victors would be able to extract a large war bonus from the vanquished. But if far fewer hopes were aroused only to be disappointed, the amount of physical distress was without

[1] *Malthus and His Work*. By James Bonar, LL.D. London: Allen and Unwin. 1924. (Pp. 438. 12s. 6d. net.)

doubt much greater, proportionally, in the years after 1815 than in the last six years.

We are all pessimists now; but however heartily we anathematize (in accordance with our political sentiments) the Coalition, the Bonar Law, the Baldwin, or the MacDonald Ministry, we should at least place this to the credit of one and all, that England in 1918-24 has not been so harsh a world for the vast majority as was the England of 1815-21.

Yet the Sphinx still asks her riddle; it is still a question whether population is not outrunning the means of subsistence, using the phrase less literally than did Malthus. His thought envisaged population pressing upon the actual physical margin of subsistence; we substitute for the notion of bare subsistence that of a standard of life, deemed the minimum permissible, and ask whether our growth of population is compatible with the maintenance of that standard. Since Malthus's day the concept of checks to growth of population other than those he discussed has been considerably enlarged. Dr. Brownlee has for some years sustained the thesis that fertility waxes and wanes following laws wholly beyond the power of man, whether acting consciously or unconsciously, to deflect. Professor Raymond Pearl has rediscovered and greatly extended a hypothetical law of population growth proposed many years ago by Verhulst, and, in his recent presidential address to the Royal Statistical Society, Mr. Udny Yule, as we have already noted,[2] has expounded this principle with his customary lucidity and generally approved it; the upshot being to regard "the growth of population as a biologically self-regulating process; indeed, a process of which the regulation is extraordinarily sensitive." This doctrine leads to the conclusion of Burke—"Let us be saved from too much wisdom of our own, and we shall do tolerably well." But it will not pass without challenge, and in the next years we may expect a large output of literature on the population problem. Anyone who intends to take part in the fray should read, or reread, Dr. Bonar and Malthus.

ROYAL COMMISSION ON LUNACY AND MENTAL DISORDER.

EVIDENCE OF THE MEDICO-PSYCHOLOGICAL ASSOCIATION.

(*Concluded from page 889.*)

Psychiatric Education and Research.

ON the second day of the sitting Sir FREDERICK MOTT gave evidence on the need for better provision for psychiatric education and research. He said that as long ago as 1907 he was convinced that a diploma in psychological medicine would prove as valuable as the diploma in public health. Just before the war Cambridge instituted such a diploma, and its example had since been followed by many of the universities. In the London county mental hospitals the possession of the diploma had become indispensable for senior appointments. Universities did not provide special courses unless there were a sufficient number of students; recently in Manchester, for instance, a course was not proceeded with because not enough candidates were forthcoming. He agreed with Sir Humphry Rolleston that it would be desirable to standardize the examinations of the different bodies. In reply to Sir David Drummond, who commented on the large amount of time devoted in the Maudsley syllabus to theoretical work and the comparatively small amount to practical, he said that the diploma was given only to men who had served a year or two in an asylum, so that it was rather on the theoretical side that they needed instruction. But at Maudsley arrangements were made for cases from the London asylums to be brought up for illustration and discussion. He mentioned the doctorate in psychological medicine of the University of London, and said that this at present had only three holders.

Sir F. Mott next spoke on the need for research. He favoured a plan whereby a group of asylums would have, apart from their own separate laboratories, a central laboratory, like that in Birmingham, which it was hoped would be the centre for the mental hospitals of the Midlands. He pointed out that in this country, while a large amount of money was spent in medical research in other directions, almost no one had come forward to assist the investigation of insanity except Dr. Maudsley, who gave half his fortune earned in his practice, and in Birmingham Sir Charles Hyde had founded a lectureship in psychology and had given a certain sum of money for a scholar in the research laboratory. Asked by the Chairman why mental sciences remained "a Cinderella without a Prince," Sir F. Mott said that he thought it was attributable to the persistence of old metaphysical ideas with regard to mental diseases—people had not got away from demonology yet.

Dr. EDWIN GOODALL thought that there was no barrier to the local authorities who were responsible for public asylums assisting financially in the setting up of such laboratories as Maudsley, Birmingham, and Cardiff. At Cardiff already large sums of money had been spent on pure research. The Chairman said that legally there was no obstacle to local authorities spending money on such objects within their own area, but difficulties would arise when it was proposed to spend money on a laboratory or other institution outside their own area. Dr. Goodall went on to speak of the inadequacy of the present teaching of psychiatry, which had not greatly advanced since the time, thirty years ago, when he was a student. Save for the Bethlem Royal Hospital and now the Maudsley Hospital, only "asylums" were available for students to go to, and at asylums the cases such as they would be required to deal with in practice were very rarely to be seen. He compared the teaching of students in England, to its disadvantage, with the teaching at the University of Utrecht. The lack of teaching facilities here resulted in the appointment to asylums of junior medical officers who knew very little of mental disorders.

Mr. MICKLEM asked whether it was the suggestion of the association that the local authorities should be asked to afford moneys for the upkeep of central laboratories. Sir F. Mott said that that would be very desirable. In return the local authorities would be able to have investigations carried out with regard to epidemics, for example, arising in asylums, or, indeed, any form of research work, and students would have facilities for instruction. Lord Russell said that the Commission had heard a Lancashire witness who had objected strongly to directed research. Sir F. Mott said that the director of a laboratory would not interfere with any research he thought likely to be of use, although he would desire to have control over what was published from his laboratory. Lord Russell said that the objection of the witness to whom he had referred went further; he had even deprecated team work, believing that research should be left to individual inspiration. Sir F. Mott argued that this was not a true view. The most valuable achievements had been the result of team work, and could have come about in no other way. He would not, however, agree that the Board of Control should exercise control over research at all; that was not its province.

Dr. COLE, at the conclusion of the evidence, said that he hoped the Commission would recommend that in some way Parliament would allow research to be encouraged at asylums. Mr. MICKLEM, who had meanwhile taken the chair, said that the Commission fully appreciated the views which the representatives of the association had so well expressed.

A valuable memorandum was submitted to the Commission by Dr. J. R. LORD on the legal and administrative position of psychiatry in some European countries and in America, and another by Dr. MENZIES on the constitution of the central authority in mental health. Dr. Menzies's view was that the Board should consist of five medical and two legal members, and that the medical members should be paid not less than £2,000 a year. For a pension the years served under a local authority should be counted. The Commissioners should be experts of the highest standard of medical and scientific attainment.

[2] November 29th, 1924, p. 1014, and January 10th, 1925, p. 74.

England and Wales.

A NEW HOSPITAL AT WOOLWICH.

A NEW general hospital is to be erected by public subscription at Shooters Hill, in memory of residents of Woolwich and the adjacent districts who died in the war. The new institution will serve a population of 200,000, the nearest general hospital being four and a half miles away. It is proposed that the foundation stone of the first section of the hospital shall be laid by the president, the Duke of Connaught, on July 7th. This section will provide accommodation for 110 beds, and include the administrative block, operating theatres, radiological and electrotherapeutic departments, and a pathological laboratory. The total cost of the first section, including equipment, is approximately £200,000, towards which £170,000 has been raised, £80,000 of which was received in small sums locally. A substantial grant has been made by King Edward's Hospital Fund, and Viscount Burnham opened a fair and festival in the Woolwich Town Hall on May 6th, with a view to obtaining sufficient money so that the hospital may open free from debt. The second and third sections will increase the accommodation up to 318 beds.

ROBERT DAVIES NURSING HOME, LIVERPOOL.

Through the munificence of the late Mr. Robert Davies, a shipowner of Liverpool, a nursing home has been established for the exclusive use of middle-class patients of limited means. A mansion was acquired in Sandfield Park, West Derby, near Liverpool, and after suitable alterations was opened in January last. It stands in twenty acres of ground, secluded from the noise of a large city, and yet within easy access from all districts. Thirty patients can be accommodated, and the loftiness of the rooms, of which there are three on the first floor and six on the second floor, ensures ample air space. All these rooms give the impression of comfort in surroundings to which this class of patient is accustomed. Each bed is capable of being screened by an ingenious arrangement, ensuring privacy and sacrificing nothing of the nursing requirements of the patient. The lavatory arrangements are complete in every respect, and perfect ventilation is ensured. There is a lift for bed cases, and the corridors are wide. Heating is central, and the whole building is thoroughly dry. There is a complete operating unit, consisting of surgeon's dressing room, sterilizing room, anaesthetic room, and operating room. The last has a northern aspect, a terrazzo floor, and the operating table as well as the fittings are of the latest type. In fact, although designated a home it is in reality a hospital with all the amenities to which these patients are accustomed in their daily life. Patients are attended by their own medical men, and on them devolves the onus of recommending applicants for admission; this recommendation is submitted to the honorary secretary for confirmation. No neurasthenic, infectious, phthisical, or mental case will be admitted, and maternity cases must receive the special permission of the committee. The charge for each patient is three guineas a week, which includes nursing, surgical dressings, and medicaments. The honorary secretary is Mr. Frank White, 12, St. George's Crescent, Liverpool, from whom full particulars can be obtained. It would appear that this home really meets, not only the wants of many patients, but those of medical men, who know only too well how expense on the one hand, and the objection to entering a hospital and being no longer under the care of their own medical men on the other, militate against the patients' speedy convalescence.

ROYAL ALBERT INSTITUTION FOR THE FEEBLE-MINDED, LANCASTER.

New buildings are being added to the Royal Albert Institution for the Feeble-minded at Lancaster, and it will soon be possible to accommodate about 1,100 patients. The Cavendish Reception House, which has been built at a cost of £6,624 apart from furnishing expenses, will, it is hoped, be ready for occupation early in June. An open-air school for use during the summer months has been completed recently at a cost of £850, and a start will shortly be made with the erection of six new blocks to house low-grade defectives who require little more than ordinary supervision. Each of these blocks will accommodate about fifty patients, and will be associated closely with the central administrative block. At present the institute contains 798 patients, of whom 308 are from Yorkshire, and though it appears that the flow of payments by patients, donations, and subscriptions from this county during the last year was insufficient for the maintenance of these patients, yet the deficit is more than covered by the income arising from invested Yorkshire contributions. The deficit was due to an increase in both the number of Yorkshire patients and the cost of their maintenance. Since 1878 the members of the various Yorkshire associations have collected over £33,000, and the ladies' associations of the seven counties which are co-operating in the support of the Royal Albert Institution have raised a sum of over £112,000.

CENTRAL MIDWIVES BOARD.

The Central Midwives Board for England and Wales met on May 7th, Sir Francis Champneys presiding. At the penal board five cases were dealt with and all the midwives concerned were removed from the roll. The principal business dealt with by the standing committee included consideration of the proposed new rules as to training, prepared by the Central Midwives Board for Ireland. The following reply was agreed on:

> That the Board has no observations to make on the draft rules, other than to state that, as at present advised, it does not consider the training which has led to the appearance of the name of a candidate on the general part of the register (otherwise than by passing the examination of one of the joint nursing councils) or the supplementary part of the register, containing the names of sick children's nurses, as justifying a reduction in the full period of midwifery training required by the rules of the Board, and her admission to the roll under such conditions.

A letter was received from the honorary secretary of the Welsh branch of the Society of Medical Officers of Health, stating that the branch approved of the holding of a conference between representatives of local supervising authorities and members of the Board to discuss points raised out of the administration of the Midwives Act, but suggesting that the Welsh authorities should not be grouped with English authorities, and also suggesting the desirability of the Board approaching the Welsh Board of Health with a view to a joint conference with Welsh authorities.

Scotland.

FINANCIAL POSITION OF EDINBURGH UNIVERSITY.

At a meeting of the General Council of Edinburgh University on May 6th the Principal, Sir Alfred Ewing, stated that during the past half-year a remarkable and agreeable change had come over the University's finance; as regarded both capital and income there had been an improvement of the most significant kind. Six months ago the University had been involved in a heavy burden of debt contracted in respect of the new chemical laboratory; this burden had been so heavy that it had seemed impossible to contemplate any fresh schemes of expenditure for many years to come, but the situation had been entirely altered by the great generosity of Sir Alexander Grant and other donors. The extinction of the debt would still be a matter of some time, but it would now be possible to enter with confidence on enterprises for new buildings the University greatly needed. With regard to annual revenue, the Chancellor of the Exchequer had allowed the inclusion in the estimates for the current financial year of a supplementary sum to the annual grant for the universities of Great Britain, although it was not yet possible to say exactly what the amount would be. It would represent substantially the same amount as that by which the annual grants had been reduced some years ago. These two things would ease the financial position of the University and enable it to increase its activities in other directions, but there would remain the necessity of impressing on the friends of the University the fact that it still had need of help. Reference was also made to the founding of a chair of archaeology, for which funds had been left by the late Lord Abercromby. The Business Committee of the council submitted a report recommending the council to approve of a proposal to institute an honours course in experimental psychology for the degree of B.Sc.

MAN'S EVOLUTION.

Sir Arthur Keith has given a course of Munro Lectures before the University of Edinburgh. His subject was the evolution of man as told by his fossil remains. In his first lecture, given on May 1st, he said that if nothing more was to be known of the origin of the British people than was contained in the history of classical writers, the work compiled in the sixteenth century by that prince of Scottish scholars, George Buchanan, would be the standard treatise on British origins. He was right in holding that the early Scots were a Celtic-speaking people who inhabited the centre of the Continent and were the first to reach the British Isles, coming by two routes: one party, after spending several generations in Spain and France, entered by the west, and the other by the eastern shores, after dwelling for centuries in North Germany. The first man in Scotland to write history in a new way had been a distinguished native of Edinburgh, Daniel Wilson. He was born in 1816, and, when still a young man, Scandinavian

antiquaries were making the wonderful discovery that history could be read from ancient tombs as well as from ancient manuscripts. They dated tombs according to the kind of implement found in them, and accordingly could assign the skulls and skeletons found in these tombs to the stone, bronze, or iron period. Wilson's pioneer work, *The Archaeology and Prehistoric Annals of Scotland*, appeared in 1851. In it he maintained that there had been a succession of races in Scotland; at least two had preceded the coming of the Celts. The next progressive step in the writing of pre-history had been made by the archaeologists of France in the sixties of last century, who investigated the debris on the floors of caves in which their remote ancestors had lived. These cave dwellers had lived with animals now extinct which were adapted for life in the coldest of climates, and the stone implements were of a much older kind than those found in the tombs of Scandinavians. Sir John Lubbock had named the kind of stone implements used by the Scandinavians "neoliths," and the weapons of the caves "palaeoliths." In Scotland the land had risen some fifty feet since neolithic times, and the carse lands contained stranded whales, sunk canoes, and the implements of early neolithic Scotsmen; the same kind of thing had been found in the valleys of the Somme and the Thames. These deposits carried man's history back to the beginnings of the Pleistocene period, at least 100,000 years ago. In his second lecture Sir Arthur Keith referred to researches regarding pre-history in Crete, which had covered a period of nearly 7,000 years, from 8000 to 1200 B.C., and to early civilization in Babylonia and Egypt. There was no evidence, he said, of any influence exerted by these civilizations upon the ancient inhabitants of Britain. The people buried in our oldest tombs differed from the earliest natives of Egypt and of the lands to the east of the Levant in the characters of the skull and face. The Scandinavians and Egyptians of to-day were at opposite ends of the European scale of racial types, and between them lay a series of intermediate types, the northern or Nordic type fading gradually into the Egyptian. The people of Britain had belonged most definitely to the Nordic end of the scale. Until 2,000 years ago cemeteries had not been required for the burial of the dead, who were laid in isolated family tombs. The explanation of this fact was to be sought in the sparsity of English communities down to the centuries which preceded the coming of the Romans. The third lecture dealt with the arrival of modern man in Europe. There was a regrettable tendency among students of human races to give up the use of the term "Caucasian," which indicated the type of man who now occupied not only Europe but also Western Asia, from Ireland to Afghanistan, and extended a short way into Northern Africa. "Mousterian" was a very definite term, standing for a period of human history which began in Europe before the last forward creep of the Arctic ice about 40,000 B.C. and ended about 20,000 B.C., when there was a respite in European climatic conditions. This term denoted also the people of that time who lived in caves, fashioned stone implements, and buried their dead in the floors of the caves. These people were separated by a great structural gulf from the Caucasian race—a greater gulf than that which separated a pronounced negro from the fairest of Scandinavians. Ten caves or rock shelters had been found dating from this Mousterian period; of that period the best known representative was the Neanderthal man. The culture which the Caucasian pioneers brought to Europe got the name of Aurignacian; they had great skill as hunters, artisans in stone and bone, and artists. These Caucasians of the Aurignacian period were not only our ancestors, but they had brought with them the foundations of our way of living. Their burial customs, their ornaments, and their implements had remained almost unchanged for several thousand years, as could be seen from caves at Mentone, Cromagnon, and from a large hunting-station, extending over several acres, which was now being explored in Moravia. At the close of the Ice Age England was joined to the Continent. The North Sea was a bay, and the Caucasians could make their way from Germany to Scotland, so that the types of implement found in caves at Oban and in the raised beach at Oronsay belonged to the same order of culture as the implements of Baltic lands. On this reckoning Scotland had been an inhabited country for about 10,000 years. If Scotland had already had pre-glacial inhabitants, they were not men of the Caucasian stock. Of this earlier race only one human skull had been found—in the McArthur cave at Oban. This skull represented a type which still abounded among people of the south and west of Scotland and in Ulster—men with long massive faces, of whom, if one might dare to cite well known and justly esteemed modern representatives, one might call to mind the faces of Lord Carson and Sir Auckland Geddes. Throughout the vicissitudes of the Ice Age the southern parts of England beyond London and Bristol had always been habitable, and some half-dozen Englishmen of the Ice Age were known. Their culture and their bones had been dug out of caves in Derbyshire, the Mendips, and from deposits in the Thames valley.

CLEAN MILK.

Several Scottish papers in the past week have published an article by Dr. Chalmers Watson dealing with graded milk, with special reference to hospitals. He believes it probable that more than two-thirds of disease in a children's hospital arises directly from defective nutrition, and very largely from the impurity of the milk supply. At the present time other countries are, he affirms, ahead of Britain in the appreciation of the importance of this subject, especially America and Denmark, where the annual milk consumption is estimated to be three times as great in proportion to population as in this country. Until quite recently the milk consumer was accustomed to buy his or her milk for domestic purposes at a flat rate, irrespective of anything but the quantity purchased. It did not matter to the consumer whether the milk itself was good, bad, or indifferent, although a standard of chemical composition, which was comparatively low, was demanded; the requirement was 3 per cent. of butter-fat and 8.5 per cent. of other solids. The milk, however, might be comparatively clean or extremely dirty; it might or might not be infected with living tubercle bacilli, or it might have infections of various kinds; it might keep sweet for several days or it might go sour in a few hours; and none of these important considerations made any difference to the price charged to the consumer. It had not been realized that milk might be of great value, of little value, or actually dangerous, until, as the result of inquiry by various committees—and we may add of the strenuous efforts of the medical profession—the Government took action by legislation in 1922 to standardize definite grades of milk. A previous grading had been established by the Food Controller in consultation with the Ministry of Health and the Scottish Board of Health. This came into force on March 14th, 1920, and was described in detail in our issue of March 6th, 1920 (p. 336). The more recent grading of milk was defined by the Minister of Health in the Milk and Dairies (Amendment) Act, 1922, which was reported in our columns of December 23rd, 1922 (p. 1239), and an explanatory memorandum, issued later by the Ministry of Health, was discussed on March 10th, 1923 (p. 433). The grades of milk now recognized are as follows:

1. *Certified milk* from herds every animal in which must have passed the tuberculin tests specified in the appendix to the memorandum before the licence was granted, and thereafter at intervals of six months. Every animal reacting to the tests was forthwith to be removed from the farm, and no animal was to be added to the herd unless it had passed the tests. The milk must be bottled on the farm immediately after production, the bottles being closed by a cap forming a seal, and bearing the address of the producing farm, the day on which it was produced, and the words "certified milk." The milk must not contain *Bacillus coli* in 1/10 c.cm., or more than 30,000 bacteria per c.cm. It must not be pasteurized.

2. *Grade A (Tuberculin Tested) Milk.*—The regulations in this case are similar to those for certified milk as regards the testing of the herds and prohibition of pasteurization, but otherwise production and distribution are governed by the regulations for Grade A milk.

3. *Grade A Milk.*—The herd must be examined once every three months by a veterinary surgeon. If the milk is pasteurized the fact must be stated on the cover of the containing vessel. The milk must not contain *B. coli* in 1/100 c.cm., or more than 200,000 bacteria per c.cm. The milk must be distributed from the farm in an unventilated sealed container on which is recorded the address of the farm, the day of production, whether produced morning or evening, and the words "Grade A Milk."

4. *Pasteurized Milk.*—The milk must be retained at a temperature of not less than 145° and not more than 150° F. for at least thirty minutes, and then must be immediately cooled to a temperature of not more than 55° F. The milk must not be otherwise treated by heat, and must not be pasteurized more than once. After pasteurization there must not be in the milk *B. coli* in 1/10 c.cm., or more than 30,000 bacteria per c.cm.

Dr. Chalmers Watson points out that the pasteurization has the defect of diminishing the nutritive value of the milk, and makes a fifth grade for ordinary milk, which may contain tubercle and other bacilli, and also grosser impurities. Such milk, it is held, is only suitable for use when cooked. Dr. Watson admits that laudable attempts have been made by practical dairymen to raise the standard of milk, but says that the producer gets no material value for his efforts in this direction. He looks on the education of public opinion as the one stimulus required to bring about a very necessary reform, and that this would also be of value in assisting the medical profession to achieve the improvement it desires. Examples of action in this direction are given, as, for example, the recent work carried on by the Town Council of Edinburgh, which was noticed in the BRITISH MEDICAL JOURNAL of May 2nd, 1925. Dr. Chalmers Watson states that none of the leading general hospitals or children's hospitals in this country have yet given this subject serious consideration, and he considers that the time is ripe for an effort on the part of the medical profession in the interests of preventive medicine more strenuous than has yet been made.

NEW EAR, NOSE, AND THROAT HOSPITAL FOR GLASGOW.

H.R.H. Prince Henry paid his first visit to Glasgow on May 2nd, when he fulfilled a number of public engagements, including the laying of the foundation stone of the new Ear, Nose, and Throat Hospital in St. Vincent Street, which is at present in course of erection. Sir John Hunter, K.B.E., chairman of directors, stated that through a special effort £54,000 had been raised out of a total cost of £60,000, and it was hoped when the building was put in use it would be free of all debt. The hospital, when finished, would contain 42 beds, and would have the most up-to-date equipment. His Royal Highness unveiled a memorial bronze tablet on the front of the building.

APPOINTMENTS IN EDINBURGH.

Mr. Keith Paterson Brown, F.R.C.S.Ed., has been appointed assistant surgeon to the Edinburgh Royal Infirmary, and Mr. Norman M. Dott, F.R.C.S.Ed., and Miss Gertrude Herzfeld, F.R.C.S.Ed., surgeons to the Royal Edinburgh Hospital for Sick Children. Mr. Dott was assistant to the Church of Scotland Deaconess Hospital and Chalmers Hospital, and Miss Herzfeld has acted for some years as assistant surgeon to the Sick Children's Hospital and junior surgeon to the Edinburgh Hospital for Women and Children.

Ireland.

FUTURE OF LOCAL GOVERNMENT.

AT a recent meeting of the Dublin Rotary Club Mr. E. P. McCarron, Secretary to the Local Government Department, spoke on the future of local government in the Irish Free State. His object, he said, was to provoke a quickening of interest in some of the more important basic facts underlying the system of local government at present in operation. A modern American authority, referring to local government in that enlightened country, had said that the business was in general the most poorly managed in the world. Until the dawn of the twentieth century the business of government was characterized by a lack of interest on the part of stockholders and customers, by extravagance in the expenditure of money, and by lack of business method on the part of officials. The root of the matter was that no community had in matters of local concern yet succeeded in reconciling two fundamental principles—first, that all government, local as well as central, must be based on government by the people; and secondly, that grave evils could not be eradicated if their causation could not be traced with precision to particular individuals on whom responsibility could be effectively placed. The corrective influence of the Dail tended increasingly to remove apathy from officialdom, a term which at one time was supposed to connote a place or state of rest. Another powerful influence for change was the ever-growing perception of the fact that all men must conform to certain regulations that were necessary to the health and well-being of others. The present immunity from such virulent diseases as cholera and typhus, and the well maintained decline in mortality rates from tuberculosis, could not have been possible without general measures independent of the fluctuating views held individually in parochial units. The bill of health of the Saorstat was a national matter, and an asset worthy of development. To put it on a higher plane, a country with considerable exportations of food commodities could not afford to delay too long in unifying and co-ordinating its various public health services. The Department of Local Government was becoming more and more convinced of the value of preventive expenditure, especially in matters of public health. The centralization of health and road matters already effected in the Local Government Act of the present year should have the effect of eliminating unproductive expenditure and of focusing criticism when it was deserved on parties who could not afford to ignore well grounded complaints. Health matters would be completely centralized in the county board of health, and the county medical officer, it was hoped, would be entirely independent of local influence. There appeared to be some promise that in the immediate future the business of local government would be allowed to proceed unfettered by any dividing lines arising out of political views. Representatives of the public had ungrudgingly in the past voluntarily done useful work, and in the time that was coming he hoped that there would be a great extension of voluntary workers in social activities. It was wonderful how much public economy could be achieved by voluntary workers.

DR. STEEVENS'S HOSPITAL, DUBLIN.

In his *History of Doctor Steevens's Hospital*[1] Dr. T. Percy C. Kirkpatrick has given us a work which is a valuable contribution to the history of medicine in Dublin during the last two hundred years. At the beginning of the eighteenth century there was practically no other provision for the treatment of the sick poor in either Great Britain or Ireland than that provided—a very important exception — by St. Bartholomew's and St. Thomas's Hospitals in London. The Jervis Street Hospital, founded in 1718, was the first of the modern Dublin hospitals. Richard Steevens, President of the College of Physicians of Ireland and professor of medicine in the Unversity, died in 1710, leaving directions in his will for the building of a hospital for the sick poor of the city. Owing to the energy of that remarkable woman, his sister, Grizel Steevens, the foundation stone was laid in 1720, but it was not until 1733 that the hospital was finally declared open.

The book contains an account of the lives of the most eminent physicians and surgeons connected with the hospital during the two hundred years of its existence, such as Richard Helsham, the friend and physician of Swift, and professor of natural and experimental philosophy at Trinity College; Edward Worth, who left a valuable library and £1,000 to the hospital; Bryam Robinson, described by Sprengel as one of the most celebrated iatromathematicians of his time; and lastly Abraham Colles and William Cussack, who did for surgery at Steevens's what Graves and Stokes did for medicine at the Meath. A medical school in connexion with the hospital was founded in 1857, but came to an end in 1880. Among other chapters of interest we may allude to those on the early history of Dublin hospitals, on fever in Ireland in the eighteenth century, on the relations of Dean Swift with the hospital, and on the early history of nursing. Dr. Kirkpatrick's book is illustrated by portraits of physicians and surgeons connected with the hospital, as well as by photographs of the buildings and wards at different dates.

[1] *The History of Doctor Steevens's Hospital, Dublin, 1720-1920.* By T. Percy C. Kirkpatrick, M.D., M.R.I.A. Dublin: University Press. 1924. (Double cr. 8vo, pp. xvi + 397; illustrated.)

An appendix contains lists of physicians, surgeons, and other members of the staff of the hospital from its foundation until the present day, as well as of contemporary judges, ecclesiastics, and others holding high official positions in Dublin.

ULSTER MEDICAL SOCIETY.

On April 30th at Londonderry, before the Ulster Branch, Lieut.-Colonel R. McCarrison, C.I.E, I.M.S., gave a British Medical Association Lecture on some problems of thyroid disease. On the following day a special meeting of the Ulster Medical Society was held at Belfast, with Dr. Singleton Darling in the chair, when Colonel McCarrison gave a lecture on some points observed during his researches on goitre and deficiency diseases during the last twenty years. The room was filled to overflowing and the address was followed with the greatest interest. At the end a hearty vote of thanks was passed with enthusiasm. Colonel McCarrison is an Ulster man, and received his medical education in Queen's College, Belfast; this is the first time his fellow countrymen have had an opportunity of showing their appreciation of his work. In the evening he was entertained by a few medical friends to dinner, but the notice was so short that many who desired sincerely to join in doing him honour were unable to be present.

A MEDICAL FAMILY.

Dr. William S. Boyd, assistant tuberculosis officer for County Down, has been unanimously elected medical officer of the Hillsborough Dispensary District, County Down, in succession to his father, the late Dr. Henry J. Boyd, who had held it for many years, and who had succeeded his father in the same post. The many friends of the late Dr. Boyd, whose death was noticed in our issue of April 11th, will be much pleased that he is followed by his son; the unanimous and enthusiastic election of Dr. William Boyd proves that the feeling of the public is one with that of the profession.

Medical Notes in Parliament.

[FROM OUR PARLIAMENTARY CORRESPONDENT.]

THE House of Commons has this week completed the report stage of the Budget resolutions, taken the second reading of the Rating and Valuation Bill, and debated unemployment on the Ministry of Labour vote. Before the debate on the Rating Bill the Minister of Health met the Unionist Public Health Committee; Dr. Fremantle, who presided, explained that the Government meant to carry this bill into law this session, in order that Poor Law reform might be effected next session. It is recognized that to carry the Rating Bill the Government will have to ask Parliament to reassemble in the autumn to complete the business of 1925, and thereafter to hear the King's Speech before Christmas. The Public Health (Scotland) Amendment Bill was passed through Grand Committee on May 12th without amendment. A proposal by Mr. William Adamson to extend the operation of the bill to remedies other than insulin and diseases besides diabetes was ruled out of order.

The spokesmen of those osteopaths who desire Government recognition and statutory registration propose to arrange a deputation to the Minister of Health early next month, and are drafting a bill incorporating their demands. Mr. Basil Peto has tabled a series of questions to the Minister of Health asking for action in the same sense.

Small-pox and Vaccination.

Sir William Davison asked the Minister of Health the number of children in this country who were unprotected by vaccination and the percentage of babies for whom certificates of exemption were granted last year. The Minister replied that this information was not available, but the figures of exemption for 1922 were equal to 44.5 per cent. of the children born, the corresponding figure for children vaccinated being 40.3. Sir William Davison further asked what steps the Minister was taking to protect the country against an extension of the present outbreak of small-pox. Mr. Chamberlain replied that the responsibility rested on the local authorities and their officers, but the medical officers of the Ministry of Health were giving all possible assistance and advice to authorities of affected areas.

Sir William Davison asked whether the Minister would consider reimposing the regulation which had been withdrawn last year. Captain A. Evans asked what percentage of the objections were medical and what conscientious. No answer was given to either question. In figures which were circulated later in reply to a question by Dr. Watts, Mr. Chamberlain stated that 849,060 children were born in 1921; 324,864 were vaccinated, and in respect of 382,157 children certificates of conscientious objection were received. In 1922 there were 780,277 births, 314,550 vaccinations, and certificates of conscientious objection in respect of 347,511 children. The Minister had no information as to the number of cases in which proceedings had been taken for the enforcement of the provisions of the Vaccination Acts during the same years.

Dr. Fremantle asked the number of cases and deaths from small-pox in the first four months of this and of the previous three years. In reply the Minister stated that in the first four months of 1922 there were 317 cases with 1 death; in the first four months of 1923, 692 cases with no death; in the first four months of 1924, 1,569 cases with 3 deaths; and in the same period of the present year there were 2,214 cases (provisional figures) with 3 deaths. Dr. Fremantle further asked the Minister of Health whether he proposed to rely on present methods of sanitary administration and of vaccination administration to check the further spread of the disease or to promote, and, if so, in what way, a fuller recourse to protection by vaccination. Mr. Chamberlain replied that he was carefully watching the course of the present outbreak of small-pox, but as at present advised he did not consider it at this time necessary or expedient to modify the existing administrative arrangements for dealing with small-pox. At present he did not think it necessary to issue any fresh regulations.

Colonel Day asked the Minister of Health, on May 12th, how many deaths had been registered during the half-year ending December last from small-pox, measles, pneumonia, scarlet fever, diphtheria, and influenza. Sir Kingsley Wood (Parliamentary Secretary to the Ministry of Health) replied that the figures for England and Wales were: small-pox, 3; measles, 1,317; pneumonia, 12,381; scarlet fever, 426; diphtheria, 1,205; and influenza, 2,145. In two of the cases classed as small-pox that disease was entered by the medical practitioner as a contributory cause of death.

Patent Medicine Duties.—In explanation of the financial resolution continuing the additional medicine duties, Mr. Guinness (Secretary of the Treasury) said, during the report stage, that the original scales of medicine duty were permanent. They had been doubled in 1915, with the unexpected result of more than doubling the revenue from them, which for the nine subsequent years had been £1,089,000, against £329,000 for the nine previous years. The Treasury found that these increased duties had not affected the sale of patent medicines, and they did not impede the work of panel doctors, less than 1 per cent. of whose prescriptions were estimated to come under the operation of the duties. The Government regarded them as valuable duties, which imposed no hardship on any class. The resolution continuing the duties was then accepted without debate.

"*Headache Powders.*"—Answering Colonel Day, on May 7th, the Minister of Health said that he was aware that so-called headache and nerve powders sold by small traders frequently contained acetanilide, a drug which, if improperly used, was likely to be dangerous. Evidence in the case of a young woman at Trowbridge, near whose body a packet of a powder containing acetanilide was found, showed that an excessive dose had been taken deliberately. It was a matter of controversy whether acetanilide, though its action might be injurious, could be regarded as a poison in the ordinary sense. It did not come within the terms of the Dangerous Drugs Acts, and, pending legislation for the control of secret remedies, he doubted whether effective steps could be taken to restrict the sale of headache powders containing it.

Morphine and Heroin Production.—Answering Commander Kenworthy, on May 7th, the Home Secretary said that, according to provisional figures, two factories in Edinburgh, in 1924, manufactured 99,400 oz. of morphine, 16,700 oz. of heroin, and 153,300 oz. of codeine. The exports of morphine, including morphine in preparations made direct from raw opium, were 88,870 oz., and of heroin 10,704 oz. No statistics were available of the export of codeine, which was not a dangerous drug. Europe took 60,000 oz. of morphine and 7,600 oz. of heroin. The imports of raw opium for 1924 were 155,792 lb., of which the two morphine-manufacturing firms took 109,004 lb.

National Health Insurance.—The Minister of Health will consider whether the Royal Commission on National Health Insurance should issue an interim report. In 1913-21 the average number of weeks of sickness benefit paid to men under the National Insurance Act was 6,300,000, and to women 3,790,000. In 1923 it was 6,750,000 for men and 4,250,000 for women. In 1913-21 the average disablement benefit was 2,975,000 weeks for men and 1,550,000 for women. In 1923 it was 6,000,000 for men and 3,500,000 for women.

Pensions.—Mr. Windsor asked Major Tryon why, seeing that Supplementary Estimates for 1924-25 had provided £920,000 for treatment allowances in excess of pension, the estimates of the Ministry of Pensions for 1925-26 showed a reduction of £1,140,500 in the provision for treatment and treatment allowances. Major Tryon replied that only £430,000 had been voted as a Supplementary Estimate for treatment allowances. The reduction of the vote during the present financial year anticipated that the normal decline in the requirements for treatment would continue. Mr. Windsor further asked whether any instructions had been issued to the medical officers of the Ministry that they should, as far as possible, reduce the number of cases in which allowances were to be paid, even though the pensioner might be totally disabled temporarily as a result of his war disability. Major Tryon replied

that no instructions in this sense had been issued, and that no change had been made in the conditions of eligibility for treatment allowances. Major Tryon informed Mr. Robinson, on May 7th, that the Government was not considering proposals to terminate the Ministry of Pensions as a separate department in 1927 and to hand over its duties to the Ministry of Health.

The Trevethin Report.—Mr. Neville Chamberlain, in reply to Mr. Basil Peto, on May 7th, said the Ministry of Health had accepted the principal recommendations of the report of the Committee presided over by Lord Trevethin, and action was being taken to give effect to them. He was still in correspondence with the two societies interested in the combating and prevention of venereal disease with regard to the recommendation of the report referring to the sale of disinfectants by chemists. Mr. Peto further asked whether agreement between the two societies would be followed by legislation in the present session. Mr. Chamberlain said that did not depend on agreement between the societies, but he had been in correspondence with them.

General Nursing Council.—The Minister of Health is prepared to recommend the appointment of a Select Committee to examine the revised scheme for the election of nurse members of the General Nursing Council, and to report whether the adoption of the Council's syllabus of training should be compulsory. Our Parliamentary correspondent adds that the Government is proceeding with the setting up of this Select Committee, of which Major Barnett will be chairman. Mr. H. A. L. Fisher and possibly Dr. Fremantle are to be members of it.

Pollution of Water Supplies.—In reply to Dr. Fremantle, Mr. Neville Chamberlain said before considering legislation for safeguarding supplies of underground water and preventing its pollution, as proposed by the Advisory Committee on Water, he must consider the views of the interests affected. These views would be available at an early date, but he did not think the legislation could be carried through this year.

Unemployment and Health.—The Minister of Health, on May 12th, informed Mr. Groves that the figures for certain districts with the highest average degree of unemployment for the twelve months ended February last indicated that in the majority of those districts the birth rate and the infant mortality for 1924, and the percentage of population living more than two persons to a room, according to the census returns for 1921, were above the average for England. There was not, however, sufficient correspondence between the figures to warrant any general conclusion. The Government was exploring all possible means of reducing unemployment, overcrowding, and infant mortality.

Notes in Brief.

The Minister of Health hopes to introduce legislation dealing with the reconstruction of the registration service for births, marriages, and deaths.

The proposed improvements in the ventilation of the House of Commons will not be made before the autumn recess.

The Bombay Government has adopted a declaration of the Bombay Excise Committee that the extinction of the traffic in alcoholic liquor and drugs by suitable steps should be the goal of its excise policy.

A smoke abatement bill is proposed for next year.

The Home Secretary has not reached any decision on the inclusion of bursitis with miner's beat-knee in the schedule of industrial diseases.

The Home Secretary cannot say when the Factories Bill will be introduced. It is quite impossible to give a pledge to pass the bill this session.

According to the latest returns there are 36,518 blind persons in England and Wales, of whom 12,024 between the ages of 50 and 70 receive the old age pension. Of the blind population over school age, 20,759 are returned as unemployable and 8,234 as employed. In workhouses and workhouse infirmaries there are 3,000 blind.

The Minister for Education is considering, in consultation with the local authorities, the whole question of the provision of special schools for blind, deaf, physically and mentally defective, and epileptic children.

The Minister of Health will fix the date of operation of the regulations on preservatives in food so as to allow time for the disposal of existing stocks.

The Home Secretary informed Colonel Day, on May 7th, that it was impracticable to issue an order for the compulsory sterilization of hides, as no effective method was known which did not seriously damage them for commercial purposes. The Chief Inspector of Factories stated that the existing statutory precautions under the Hides and Skins Regulations were in general well observed. Two recent cases of anthrax in the Southwark area were not due to any breach of the regulations.

The Ministry of Labour calculates that about 137,700 young women between 16 and 30 are drawing unemployment benefit.

A school dental service has not been started by the education authorities of 12 counties, 4 county boroughs, 21 boroughs, and 11 urban districts. Fourteen of these have made proposals for dental schemes.

The Therapeutic Substances Bill was down for second reading on May 11th, but was again postponed.

In 1914 8,834 children in England and Wales were classed by local authorities as suffering from some form of tuberculosis but as attending no recognized school or institution.

Correspondence.

SLEEPLESSNESS IN ENCEPHALITIS.

SIR,—Dr. C. P. Symonds in his interesting paper on sleep and sleeplessness, in the BRITISH MEDICAL JOURNAL of May 9th (p. 870), definitely classifies the insomnias of the chronic stage of encephalitis as due to disease directly involving the sleep centre (if there is one). My own experience in Ruchill Fever Hospital showed that the capacity for sleep was not in any case impaired, although the time was altered.

In a small ward were seven boys who had passed through the acute stage of encephalitis two or three months previously. Their ages varied from 4 to 14 years, and they all suffered from nocturnal restlessness associated with tics, such as nose-picking, hand-clapping, spitting, "trumpeting," sniffing, etc. The hours of falling to sleep varied from 1 a.m. to 5 a.m. I determined to try the effect of turning their night into day. Accordingly they were put to bed at 6 a.m. and made to rise at 6 p.m. for breakfast. Dinner was served about 11 p.m., tea at 3 a.m., and supper about 5 a.m. They were told that they were on "night duty," and were allowed to read or play about the ward. For the first few nights they kept awake with difficulty until 6 a.m., but the new rhythm was soon established. They had no difficulty in falling asleep. All day they slept soundly till 4 or 5 p.m. In a short time they showed a distinct general improvement. They put on weight, and their faces lost the tired or excited expression. The tics diminished in frequency, but did not disappear.

After five weeks of this treatment I tried reversing the periodicity back to normal. Accordingly one morning the boys were told that they did not require to go to bed until they liked. Next morning they were roused at 6 a.m. For seven to fourteen days (varying in different cases) they slept well at night, but the old night restlessness returned along with an increase in the tics. Their hours of sleep were diminished. By again turning night into day improvement again resulted.

I concluded that the treatment was in no sense a cure, but by securing an adequate sleep must tend to assist natural recuperation. It certainly diminished excitability. Unfortunately conditions prevented me from continuing the experiment for a further period. It would have been interesting to see if a "morning restlessness" finally resulted.—I am, etc.,

JAMES L. HALLIDAY, M.D.

Public Health Department, Glasgow,
May 12th.

THE MORTALITY OF APPENDICITIS.

SIR,—The post-operative mortality of appendicitis is still very large and has shown no diminution during the past decade.

It is generally admitted that: (1) Operations performed during the first twenty-four hours of an acute attack have a mortality of less than 1 per cent. (2) In cases of local peritoneal infection the death rate is highest when the operation is performed from the third to the fifth or sixth day (10 per cent. or more). (3) If, in cases of local infection, an operation is performed during the second week (opening and draining an abscess), the mortality rate is much lower. (4) Cases where there is general peritoneal infection have a higher death rate, although owing to improved methods—that is, pelvic drainage, Fowler position, etc.—this is far lower than it used to be fifteen or twenty years ago.

It is generally agreed that an operation should always, if possible, be performed during the first twenty-four hours after the onset, and that in all cases where the general peritoneal cavity is involved operations should be performed without delay, the appendix removed, and the pelvis drained.

There is considerable difference of opinion as to the advisability of operating during the dangerous period when the infection is local—that is, from the third to the sixth day. Some surgeons advocate delay till after the

first week, others operate at any time that the case presents itself.

Why is it safe, or almost safe, to remove an inflamed appendix during the first twenty-four hours and dangerous to perform the same operation from the third to the fifth day, when the inflammation has spread to the neighbouring peritoneal surfaces, and a local abscess has formed? The explanation is that in operating upon an early case, while infection is confined to the appendix, it is generally possible to remove the appendix by cutting through healthy uninfected tissue at its base; in this case there is no more danger than in performing an interval operation or removing a normal appendix. But when infection has involved the neighbouring peritoneum, caecum, etc., it may be necessary, in removing the appendix, to cut through or crush tissue infected with virulent organisms—the *Bacillus coli* and *Streptococcus faecalis*—and so drive these organisms into the blood stream, setting up an acute septicaemia or bacillaemia, after an incubation period of twenty-four to forty-eight hours; and even handling inflamed tissue or removing the protective layer of lymph from the abscess wall may give rise to the same infection.

The symptoms of this septicaemic infection are very evident, especially in children. A sudden change for the worse in the facial aspect occurs, the pulse rate increases, and pallor of the face, restlessness, followed by delirium and dilatation of the pupils, develop. A shrill "meningeal" cry is very noticeable, and death, preceded by coma, follows within twenty-four hours of the onset of serious symptoms. Some of these deaths have been attributed to delayed chloroform poisoning. I have seen a good many such cases during the past fifteen years, and in every instance in which I have made a culture from the blood during life, after the onset of the symptoms, there has been an abundant growth of the *Streptococcus faecalis* or *Bacillus coli*; in most cases the *Streptococcus faecalis* was the organism present. In no case of appendicitis in which these symptoms have not appeared have I been able to find any blood infection.

When patients are operated upon after the first week, sufficient toxins have been absorbed into the circulation to produce a considerable degree of immunity to infection owing to the development of antibodies; hence the diminution of mortality after the first week.

When there is general peritoneal infection the danger to life is due to toxin absorption and bowel paralysis, and operation is imperative at any stage of the disease.—I am, etc.,

HERBERT H. BROWN, M.D., F.R.C.S.

Ipswich, May 4th.

RELAPSE IN MEASLES.

SIR,—In further reply to "G.P.'s" question, "Is there such a thing as a relapse in measles?" (BRITISH MEDICAL JOURNAL, May 9th, 1925, p. 908), I answer in the affirmative.

One of the best modern authorities on infectious diseases, the late Dr. Claude B. Ker of Edinburgh, whose death from pneumonia so recently as March 25th of the present year we all deplore, wrote in his standard work:

> "Relapse of measles is exceedingly rare. I have seen one case, however, in which a typical attack was followed seven or eight days later by a repetition of the disease with equally classical symptoms. Neither attack was in the least like rubella. The patient, a young female adult from the Highlands, made a good recovery."

Describing measles in my *Eruptive and Continued Fevers* many years ago, I wrote:

> "In rare cases a relapse of the eruption has been known to occur with a return of the fever movement also. In these cases, according to Thomas [of Leipzig], the spots appear on parts of the skin previously uninvaded by the exanthem. These relapses are of short duration."

In thirteen years' practice at Cork Street Fever Hospital I met with no case of relapse, a fact which testifies to the rarity of the condition.

In the *Deutsche medizinische Wochenschrift* (December 3rd, 1892) Dr. W. Streng reports from the medical clinic at Leipzig a case of relapse in measles in a little girl aged 6 years. On the tenth day after the eruption the temperature began to rise gradually to 103.8°, and on the twelfth day a measly rash appeared for the second time, corresponding with the highest temperature, accompanied by a recrudescence of the catarrhal symptoms, and attaining its greatest intensity the following day. During the night between the fourteenth and fifteenth days after the first eruption a critical fall of temperature occurred, while the rash faded gradually during the next two days.

In a *Treatise on the Acute Infectious Exanthemata* Professor William T. Corlett of the Western Reserve University, Cleveland, U.S.A., mentions that he saw a case of relapse in measles in consultation. In that instance there was an interval of eight days between the subsidence of the eruption and the second efflorescence. In both attacks the usual symptoms were present, although the exanthem was most marked in the second. He looked upon the case as one of recurrent measles such as was described by Trojanowsky (*Dorpat. med. Zeitung*, 1873, iii), but he quotes several authors who had observed cases of relapse occurring most frequently about the end of the second week, accompanied by a return of the fever and, to a less extent, of other constitutional symptoms.—I am, etc.,

Dublin, May 9th. JOHN W. MOORE, M.D., F.R.C.P.I.

NODAL FEVER.

SIR,—A number of years ago I treated a case beginning as erythema nodosum, which certainly suggested that this disease should rank as a specific infective fever, and the modern name, "nodal fever," seems quite fitting.

The patient was a middle-aged lady on a visit to friends. The illness began with typical nodes on the shins without any marked prodromata. Strict rest was enjoined, with protection of the legs, and salicylate was given internally. All went well for a time and then dry pleurisy came on, later pericarditis and endocarditis, as evidenced by the physical signs. At the same time signs of pneumonia of a fleeting nature were present—distant tubular breathing, quite distinct—in one place one day, in another the day following.

As the patient's condition was not satisfactory a very distinguished consultant, who knew the family, kindly came from the North and gave me the benefit of his advice. Unfortunately no improvement took place, and the patient eventually died with well marked symptoms of meningitis. At various times there was a considerable amount of "rheumatic" pain in the limbs.

Here was a marked case of polyserositis—or, as it was more comprehensively, perhaps more accurately, but less gracefully, called then, polyorrhomenitis—following erythema nodosum.—I am, etc.,

Oxford, April 22nd. F. G. GARDNER.

TREATMENT OF DIABETES BY RAW FRESH GLAND (PANCREAS).

SIR,—On my return, a few days ago, from a trip abroad my attention was called to the letter on the above subject by Dr. Harrison published in the BRITISH MEDICAL JOURNAL on April 18th (p. 760). Dr. Harrison is guilty of an inaccuracy when he states that he repeated the experiments of Dr. Young and myself, for our cases were treated by raw gland from the beginning and never had any insulin. This also applies to the letter of Dr. Graham (May 2nd, p. 859).

The result obtained by Dr. Harrison from his experiments is just what I should have expected, as, for some reason which I am at a loss to explain, cases that have been treated with insulin do not seem to respond at all when raw gland is substituted, or, apparently, when raw gland is given in conjunction with insulin. This is a matter which I am at present investigating, and had intended referring to at a later date. One case, a lady, who was sugar-free on 1/2 oz. of raw gland, went on to a course of insulin for some months, and on resuming gland treatment again became glycosuric at once.

Dr. Harrison suggests that any improvement from gland treatment is really due to altered diet. A glance at my article will show that he is wrong. The first case recorded by me had been most carefully dieted for some months both by me personally and at the local hospital, and notwith-

standing the "alteration in diet" he became steadily worse. When, however, raw gland was added to this diet he began to improve at once. As further proof that alteration in diet alone cannot account for the extraordinary success obtained in some cases, I have only to refer to the case recorded by Dr. Dunn (BRITISH MEDICAL JOURNAL, April 4th, p. 680). This case too, it must be remembered, was a member of a diabetic family, and could only tolerate a very limited amount of starchy food before starting gland treatment, but shortly after being put on raw gland he was able to take "full diet." I may say in conclusion that I welcome the destructive criticism of Dr. Harrison and others, and am anxious that this treatment may be subjected to the most rigid and carefully controlled tests, as my object in writing was to call the attention of the profession to a form of treatment which I firmly believe to be of very real value in many cases, possibly in all cases, of diabetes.—I am, etc.,

Sandwich, Kent, May 5th. THOMAS J. HOLLINS.

THE DECLINE OF LITHOLAPAXY.

SIR,—We have been much interested in the article on "The decline of litholapaxy" by Major-General Hooton in the JOURNAL of Aptril 11th (p. 690), and the letter by Mr. Southam the following week.

I think it is fairly evident that this operation is much more common abroad than at home. In the Church Missionary Society's Hospital in Old Cairo we have a good many cases of vesical calculus, and though our figures cannot touch those of Hyderabad yet they compare well with the others mentioned.

In the last ten years (the period mentioned for the English hospitals in Mr. Southam's letter) 636 cases of vesical calculus were treated here. The operation was litholapaxy in 424 cases and suprapubic cystotomy in 212. Formerly perineal cystotomy was performed in preference to the cutting operation, but during the above period this operation has only been done very occasionally, the suprapubic route nearly always being chosen. It will be seen that while the proportion of crushing to cutting is not nearly so frequent here as it is in India, yet it is much more frequent than in any of the English hospitals. The crushing operation is always chosen unless there is some contra-indication; but we do consider it a dangerous operation in this country except in experienced hands. This is due to the great proportion of cases where stone is associated with bilharziasis of the bladder, which condition causes weakness of the bladder walls, with consequent risk of rupture and papillomatous growths on the lining mucous membrane which may easily be injured.

We find that the routine use of spinal anaesthesia by stovaine makes the operation of litholapaxy much easier than when a general anaesthetic is used.—I am, etc.,

ROBERT B. COLEMAN,
Church Missionary Society's Hospital,
Old Cairo, Egypt.

May 2nd.

RECENT ADVANCES IN THE STUDY OF CARDIO-VASCULAR DISEASE.

SIR,—In your issue of May 2nd (p. 859) Professor MacIlwaine kindly referred to my work on the venous pulse. May I take advantage of the occasion to draw the attention of your readers to the fact that the optical method of recording reveals a sharp-pointed oscillation on the v wave which is not revealed by any lever system, though a small corresponding notch or two may be seen in a delicate lever record in certain types of pulse. The different types of venous pulse met with in health formed the subject of a verbal communication at the December meeting of the Physiological Society, when it was suggested that this v oscillation, useful marking point of the onset of diastole, may, by its relationship to the point of opening of the A-V valves, reveal varying time relations for the process of venous return. The causation, time of occurrence, etc., of this new element are discussed in my original paper (*Journ. of Physiol.*, lix, 1924, p. 293).—I am, etc.,

Physiological Department, University College, Cork, May 4th. D. T. BARRY.

SIR,—The courteous letter of Professor MacIlwaine (BRITISH MEDICAL JOURNAL, May 2nd, p. 859), for which I thank him, demands a few words from me.

To my regret he does not deal with the specific objections to the current interpretation of the venous tracing which I have put forward; I had hoped for his comments upon them. He alludes to Professor Barry's recent work upon the v wave (*Journ. of Physiol.*, vol. lix, p. 293), which certainly does draw attention to the conflict of opinion obtaining as to this wave—I am indebted to Dr. MacIlwaine for this reference—but as it does not bear in any way upon my criticisms of the wave, I need not consider it here.

I have questioned whether, among modern instrumental methods, the polygraph has led to a real advance in the study of cardio-vascular disease; hereupon Dr. MacIlwaine comments: "I am afraid this must remain a matter of opinion." Surely this is the one thing which is not possible if medicine is to make any claim to be a science.—I am, etc.,

Swanage, May 11th. HARRINGTON SAINSBURY.

SLOW HEART.

SIR,—Dr. Lloyd's letter (May 2nd, p. 860) induces me to state that my pulse rate is 55 at rest and 59 to 60 for moderate activity. My attention was first called to the fact when, just over twelve years ago, at the age of 27, I began to study medicine. At the end of 1912 I suffered from a mild form of neurasthenia, and I found I had an intermittent pulse. Between 1913 and 1916 I was examined several times and cardiac arrhythmia of the extra-systole variety was diagnosed, but the cause was not so easy to find, as there was no history of dyspepsia and I have always been a non-smoker and abstainer. The only thing to explain the condition seemed to be the antecedent neurasthenia. I had been a keen athlete until I was 25—long-distance swimmer, gymnast, cyclist, and in the habit of rowing long distances, and no doubt the effect of primary cardiac overstrain had, and still has, something to say to my condition. My pulse, which was intermittent until 1920, has since been regular, but the average rate of about 56 has not at all altered in the last five years. It is well known that the pulse rate in active animals—for example, the horse and dog—often diminishes in old age, and the same thing is true of the human pulse; but is it not curious that the pulse rate of a racehorse should be 40 to 45 but that of a dog 90 to 100? Is not the faster rate more what we should expect with rapidity of motion?

During the last five or six years I have been keenly interested in the pulse, and have met quite a number of instances of the slow variety. The members of my family have normal pulses, so I think I must have started life with a normal one.—I am, etc.,

Wallasey, May 9th. BRUCE BRIGGS (Clk.), M.B.

OSTEOPATHY AND CHIROPRACTIC.

SIR,—Your article headed "Osteopathy and Chiropractic" in the BRITISH MEDICAL JOURNAL of April 11th (p. 706), in which you have coupled with my name a criticism of osteopathy and a serious attack on American medical education, obliges me to reply.

"The conditions," as you state, "are not the same in the two countries." In the British Isles no university, college, or medical school is empowered to grant a degree unless the standard of teaching and professional examinations meets the requirements laid down by the General Medical Council. British medical degrees are, therefore, more or less uniform, and the possessor of a British medical degree is admitted without further examination to the *Medical Register*. In the United States of America a medical degree from a university or medical college does not automatically confer a licence to practise. Each State in America prescribes and conducts its own State Board examinations. Even a Harvard medical graduate has to pass a State Board examination before he can obtain a licence to practise.

The American colleges of osteopathy did not introduce such subjects as bacteriology and surgery into their curricula in order (as you imply) to become assimilated to orthodox medicine, but in order that their graduates might be knowledgeable, might be able to make a complete diagnosis and refer cases to the surgeon when necessary, might be able to pass State Board examinations and obtain a full licence to practise.

You suggest that in this country "the type of diploma appropriate to them [the osteopaths] is the medical diploma and nothing less. They should take it before receiving a licence to practise." I would point out that in the British Isles no one need take a licence to practise anything except medicine and surgery. The osteopaths are not asking for a licence to practise medicine or surgery.

It is obvious, when you convey the impression that osteopaths ask you to "believe that a cold in the head, a crop of pimples on the face, an attack of vomiting and diarrhoea after a gorge, an attack of gout or measles . . . are, one and all, due to small spinal irregularities which may be readily corrected by manipulation of the back," that your conception of osteopathy is founded on the views and practices of the very osteopathic charlatans from whom the British Osteopathic Association is anxious to protect the public. Qualified osteopaths do claim that spinal column abnormalities not hitherto detected by the medical profession do exist, and that such framework abnormalities cause a lowering of local or general resistance, thereby allowing other etiological factors in disease, such as organisms, etc., to exert their influence unduly.

You say "our osteopathic visitors will have to fall in with our ways." In reply, your qualified osteopathic visitors are trying to fall in with your ways. They realize that they can continue, unheeded by the law of the land, to practise—as they very successfully do—their art, but they are anxious that the British public should have some means (to use your words) of distinguishing the sheep from the goats. They ask for an official register of qualified osteopaths in Britain, and they ask for a charter for the British school of osteopathy in order that their diploma may be of more value than the paper it is written upon.—I am, etc.,

Edinburgh, April 28th. W. KELMAN MACDONALD, M.D.

APPENDICITIS.

SIR,—In reply to the letter from Dr. T. A. Black in the JOURNAL of May 9th (p. 904):

In my experience the sudden onset is due to obstruction and distension of the appendix, the gradual to inflammation without these conditions. It is impossible to predict the course of any case of appendicitis at its onset, therefore whether the attack be sudden or gradual the only safe procedure is to terminate it by early removal of the appendix.—I am, etc.,

London, W1, May 9th. JAMES SHERREN.

CENTRAL MIDWIVES BOARD INQUIRY.

SIR,—In the article on puerperal sepsis in the BRITISH MEDICAL JOURNAL for May 9th I observe that it is stated that the Central Midwives Board contemplates an inquiry into the matter through the agency of the local authorities.

This statement is not accurate. The Board is proposing that a conference between members of the Board and representatives of local supervising authorities shall be held with the object of bringing into closer touch the authorities specifically charged with the administration of the Midwives Acts—namely, the Central Midwives Board and the various local supervising authorities in England and Wales—with a view to more efficient administration, if possible, of those Acts.

It is not proposed that the conference shall deal specially with puerperal sepsis, the object of the conference being general, as above explained.—I am, etc.,

H. G. WESTLEY,
Secretary.

Central Midwives Board, May 11th.

Medico-Legal.

A CASE OF MALINGERING.

A CASE of much medical interest was heard in the County Court at Doncaster on April 22nd. In summing up, his Honour Judge Turner spoke of it as the most clearly proved case of malingering that had come before him, and awarded costs on the highest scale against the workman claiming compensation. The facts were briefly as follows.

A. B., aged 45, a builder's labourer, on January 4th, 1922, was breaking a slate, when a piece of the slate struck his left eye, causing a wound of the lower third of the cornea, with entanglement of iris and lodgement of small fragments of slate in the anterior chamber. Compensation had been paid by the employers, who were now applying for the termination or diminution of the weekly payments, on the ground that the workman was capable of resuming his original employment. The man's counsel contended that he was now in the position of a one-eyed man. On the other side it was contended that he was malingering and had good vision still in both eyes.

Mr. G. H. Pooley, F.R.C.S., ophthalmic surgeon to the Royal Infirmary, Sheffield, stated in evidence that the man had been a patient under his care at the infirmary. Iridectomy was done on January 13th, 1922; a piece of slate in the anterior chamber was removed (by washing out). The lens was not injured. Twelve months later the vision in each eye was 6/9 without glasses. In August, 1923, the man's vision in the injured eye was said to be less than 6/60, the vision in the right eye being still 6/9. In November, 1923, there was redness of both eyes, and at the suggestion of Mr. Whitehead of Leeds a small particle was removed from the anterior chamber which might possibly have been a small foreign body, or possibly consisted of exudate. Though the eyes were red at that time there was no sign of iritis or deep-seated inflammation. Three months later (February, 1924) vision in the right eye was stated to be 6/24, and no perception of light was admitted in the injured eye. Both pupils reacted well. Both eyes showed superficial redness, but no sign of any deep-seated inflammation. "I then formed the suspicion of malingering," Mr. Pooley continued, "because I could find no cause for this surface redness. He could have induced it by rubbing. If the left eye was as bad as he made it out to be it would have been my duty to remove that eye. If it was as good as I thought, then it was my duty to leave it in. I could never find any sign of internal inflammation, and I could find no reason why vision of either eye should have fallen below what it was in January, 1923 (6/9 in each eye). He asked me to remove the eye. He was admitted to the Royal Infirmary again in August, 1924, to be under observation. The eyes were both superficially red, but there was no sign of any internal inflammation. There was no iritis, no irido-cyclitis. From observations in hospital I satisfied myself that the redness was due to self-inflicted injury—namely, rubbing. We put blistering fluid on the outer surface of his lower eyelids, so that he could not rub the eyes. The eyes quieted, the redness was gone, while this was on." Subsequently, the redness having returned, each eye was covered with a watch-glass and adhesive plaster, and again the redness disappeared for a time. "I came to the conclusion that he had good working sight in both eyes, and that there was no need to remove the left eye." On April 16th, 1925 (six days before the case was heard in court), the man was examined again, at Mr. Pooley's consulting rooms, his house-surgeon, Mr. Nutt, being also present. On this occasion, on his vision being tested, the man would only admit bare perception of light in the right eye—the uninjured eye. "He told me he could not see a bright light at six yards with his right eye. He could not count my fingers. When a light was thrown in his right eye from a mirror he said he could just see that. He would admit no perception of light in the left eye. Both pupils reacted normally to light." Both eyes were perfectly healthy in appearance except for the scar in the lower part of the left cornea and the gap in the iris left by the iridectomy, and some superficial redness of the lower part of the white of both eyes, similar to that seen on previous occasions. About five minutes later the man admitted that he could see 10 mm. squares of red and green at about a foot distance. This showed he must have much better vision than he had admitted a few minutes before. Later on he saw 6/24 with the right eye, and then saw 6/24 with the left eye. This observation was obtained by placing a +3 D. lens in front of the right eye and leaving the left uncovered, when he read 6/24. It was subsequently demonstrated that with the +3 D. lens in front of the right eye, that eye could read barely 6/60. "At the end of the interview he pulled out his watch and read the time accurately. In my opinion he has perfectly good sight in both eyes."

Mr. A. B. Nutt, M.B., Ch.B., ophthalmic house-surgeon at the Royal Infirmary, Sheffield, confirmed Mr. Pooley's evidence as to the examination at his consulting room on April 16th, 1925, and also as to the observations made in hospital in the preceding August. He gave evidence of a further test which he had made, at which Mr. Pooley was not present. "I seated the man in a small ante-room, and put goggles set in plaster on to both eyes. The right glass was opaque, the left glass clear. He would not be able to see anything with the right eye. I seated him with the door on his immediate right hand, so that he could not see if he was being observed through the door unless he turned right round and faced the door with his left eye. I watched him, and he remained quite still for about five minutes, after which he turned round and faced the door with his left eye." He repeated this after another five minutes' interval.

Mr. A. L. Whitehead, F.R.C.S., senior ophthalmic surgeon to the Leeds Infirmary, said he had examined the man in February, 1923, when the right eye was quite normal and the vision of the left eye 6/24; there was a ragged scar across the lower third of the cornea. He examined the man in February, 1924, when the vision of the left eye was said to be no perception of light. "I tested him with a prism and came to the conclusion that he had considerably better vision than he stated. I was in considerable difficulty because the man struck me as being an honest and truthful man, but I could not find anything in the condition of his eye to account for so marked a deterioration of vision as from 6/24 to no perception of light. I thought that he should have had about 6/60 vision in that eye." Asked if he accepted Mr. Pooley's test (as to the vision of the left eye), Mr. Whitehead replied that he did accept it. In February, 1924, he found that the injured eye was congested over the lower portion. "This redness did not subside after an interval of half an hour as it would have done if produced by rubbing, but was markedly increased and spread over the whole eye after exposure of the eye to a bright light and the manipulation of the eye necessary for testing it. That indicates that the eye is not perfectly sound, and work exposing it to dust and other irritating influences is unsuitable." In reply to a remark by the judge that this would exclude most kinds of work for such a man, Mr. Whitehead said he was referring more especially to irritating dust such as lime dust. In cross-examination, he stated that he had not found signs of iritis or keratitis punctata in this case, and that, apart from another injury, there was no likelihood of sympathetic disease being set up.

A. B., the injured workman, stated in his evidence that he could not see at all out of his left eye, that the right eye had been "rather damaged from the left eye," that since the injury he had had pains in the head and both eyes and been very dizzy. "It prevents me doing any work. I am afraid of falling over. Any time I might fall over."

The judge was assisted on the bench by Mr. Herbert Caiger, F.R.C.S. (Sheffield), as medical assessor. In giving his verdict in favour of the employers, the judge said that he had been able to form his own opinion as to the credibility of the man's statements by what he had himself just said in the witness-box. Malingering had been proved in this case more completely than usual.

Judgement was given in favour of employers with costs on scale C.

This case deserves the attention of all ophthalmic surgeons engaged in work connected with the Workmen's Compensation Act.

Obituary.

THE death took place recently of Dr. CHARLES ALFRED RAYNE of Lancaster at the age of 79 years. He was a native of Kendal, and received his medical education at University College, London. He graduated M.B., B.S.Lond. with honours in 1873, and M.D. in 1887; he also took the diploma of M.R.C.S.Eng. in 1873. After serving as clinical and pathological demonstrator at the University of Oxford, resident physician to the Radcliffe Infirmary, Oxford, and assistant physician to the Children's Hospital, Manchester, he succeeded in 1881 the late Dr. Moore in practice at Lancaster. For thirty-two years he served as honorary medical officer to the Royal Lancaster Infirmary, of which institution he was consulting physician at the time of his death. Dr. Rayne, who was unmarried, had been in indifferent health for some time.

Dr. JOHN HENRY HERBERT PEARSON, who died on April 30th, in his 40th year, was a son of the minister of Newhaven, a suburb of Edinburgh. He graduated M.B., Ch.B. in the University of Edinburgh in 1908 and M.D. in 1913. After doing post-graduate work in the Royal Infirmary as clinical assistant in various departments, he began general practice from his father's manse. He got on well; with an inborn love of medical study and work he devoted himself to the care of his patients. Later he took a house and soon had an important practice. At the outbreak of the war he volunteered for service, and later was sent to Gallipoli, where in 1915 he contracted dysentery. He was sent home from the East, but went to France in 1916, where he was awarded the Belgian Croix de Guerre and the Order of Leopold, and was severely wounded. His long illness, pernicious anaemia, showed to those around him the full beauty of his character. At intervals hope was revived by temporary improvements in his condition, and he worked again amongst his patients and fished in his spare time. But with one of the relapses it became clear that his work was over, and the house and practice were disposed of. For eighteen months after that he lived, so ill at times that it seemed as if he could not last an hour; but now and then better to the extent of getting out of bed and even, once or twice, of going for a little time into the country. Through all these alternations of hope and disappointment he remained cheerful and uncomplaining. He leaves a widow and a son and daughter.

We regret to record the death, on May 4th, of Miss GWEN FFOULKES ROBERTS, M.B., Ch.B.Liverp., in her 28th year. She had only a few weeks taken up her duties as one of the house-surgeons at the Royal Liverpool Children's Hospital when she contracted scarlet fever from a case admitted in error to her ward, and succumbed to a malignant attack to which she offered little resistance. It is inevitable in a children's hospital that the incidence of infectious disease among the unprotected members of the nursing and junior medical staffs should be high. It is tragic when infection results in the cutting short of a young and promising life and the termination of a career upon its threshold. As a student at Liverpool University and at the hospital where she became resident, Miss Roberts had given much promise of success in her profession. Her work was done with meticulous care and self-sacrifice; her disposition endeared her to all. She was the only daughter of Dr. J. W. Roberts of Knayton, Yorkshire, who died suddenly a few months ago; and much sympathy is felt with her widowed mother and her only brother, also a member of the medical profession.

The deaths are recorded of Professor P. FRIEDRICH, formerly professor of oto-rhino-laryngology at Kiel; Professor F. SCHIFFERS, president of the Belgian Society of Oto-rhino-laryngology; and Dr. ALBERT MAHAIM, professor of psychiatry at Lausanne.

The Services.

ROYAL NAVAL MEDICAL SERVICE.

SURGEON VICE-ADMIRAL J. CHAMBERS, C.B., C.M.G., Director-General, Medical Department, R.N., has been appointed Honorary Physician to the King in succession to Surgeon Vice-Admiral Sir Arthur W. May, K.C.B., K.H.P., deceased.

The Royal Naval Volunteer Reserve Officers' Decoration has been awarded to Surgeon Commander H. L. Murray.

DEATHS IN THE SERVICES.

Brigade Surgeon Patrick Walter Stafford, R.A.M.C.(ret.), died at Wimbledon on April 14th, aged 87. He was born in Wexford, and, after taking the L.K.Q.C.P. and the M.R.C.S. in 1859, entered the army as assistant surgeon in January, 1860. He became surgeon major in 1875, and retired, with a step of honorary rank, in 1885. As a regimental officer he served in the 56th Foot, now the 2nd battalion of the Essex regiment. During the Ashanti war of 1873-74 he was present at the battle of Amoaful, and received the medal with a clasp; in the Zulu war of 1879 he took part in the battle of Ulundi, was mentioned in dispatches, and received the medal with a clasp.

Brigade Surgeon William Edmondson Dudley, R.A.M.C.(ret.), died at Bath on April 13th, aged 86. He was educated in the school of the Royal College of Surgeons in Ireland, took the L.A.H. and L.R.C.S.I. in 1862, and the L.R.C.S.Ed. in 1863, and entered the army as assistant surgeon in April, 1863. In the old regimental days he served for five years in the 76th Foot, now the 2nd battalion of the Duke of Wellington's West Riding regiment. He became surgeon major in 1876, and retired, with a step of honorary rank, in 1884. He served in the Zulu war of 1879 with the 3rd Foot, the Buffs, and received the medal with a clasp.

Lieut.-Colonel Joseph Andrew Gormley, R.A.M.C.(ret.), died at Bournemouth on March 1st, aged 76. He graduated M.D. and M.Ch. (Queen's University, Ireland) in 1873, and entered the army as surgeon in the following year. He became surgeon lieutenant-colonel after twenty years' service, and retired on June 3rd, 1903. He had seen a great deal of war service: Perak campaign, 1875-76, medal with star; Afghanistan, 1878-80, medal; Sudan, 1884-85, Nile campaign, medal with clasp, and Khedive's bronze star; South Africa, Matabele campaign of 1896, as principal medical officer, mentioned in dispatches, *London Gazette*, March, 1897, and specially promoted to brigade surgeon lieutenant-colonel; and South Africa, 1899-1902, as principal medical officer of a division and of a general hospital, operations in the Orange Free State, actions as Paardeberg, Poplar Grove, Karee Siding, Vet River, and Zand River, operations in Transvaal at Johannesburg and Pretoria, Queen's medal with three clasps and King's medal with two clasps. After his retirement he was employed at Kingston-on-Thames from August, 1903, to April, 1912, and again during the recent great war.

Universities and Colleges.

UNIVERSITY OF OXFORD.

Fellowship in Physiology at New College.

THE College proposes to elect, not later than October next, to a Fellowship in Physiology. The person elected will be required to undertake, as from Michaelmas term next, the teaching of members of the College reading for the Honour School of Physiology and the medical examinations. Details of the appointment and forms of application can be obtained from the Warden. These forms, duly completed, should be returned to the Warden not later than June 15th.

UNIVERSITY OF CAMBRIDGE.

AT a congregation held on May 9th the following medical degrees were conferred:

M.B., B.CHIR.—J. H. Doggart, N. F. Adeney, J. Ness-Walker, A. S. H. Walford.

The Raymond Horton-Smith Prize, awarded to the candidate who presents the best thesis for the M.D. degree during the academical year, has been awarded to M. B. R. Swann (Caius); *proxime accessit*, D. V. Pickering (Emmanuel).

Diploma in Psychological Medicine.

An examination for Part II of the Cambridge Diploma in Psychological Medicine will be held in London on June 10th, 11th, and 12th. Applications should be addressed to "The Registrary, Cambridge University," at once.

UNIVERSITY OF LONDON.

DEGREE CEREMONY.

THE annual degree ceremony of the University of London was held in the Albert Hall on May 13th.

The Principal's Annual Report.

The Principal, Sir Cooper Perry, reported that the total number of those who had entered the University during the academic year 1924-25 was 7,603, as compared with 3,852 in the last year before the war and 7,731 in 1923. Of the total in the past year 5,542 came in through the ordinary matriculation examination, 360 as graduates of other universities, 998 as holders of the Oxford or Cambridge School Examination certificate, 483 as holders of other approved certificates, and 220 after examination under Statute 116, which authorizes the admission of a student after a special test. The total number of candidates for all examinations was 31,623, about 200 fewer than in the last year. Of the 3,420 candidates for degrees, 2,079 were internal and 1,341 external, figures which corresponded very nearly with those for the previous year. The number of candidates at all examinations who obtained diplomas and degrees was 2,642, as compared with 2,598 last year. The number of internal students had risen from 8,849 to 9,002.

The Principal enumerated various gifts made to institutions of the University, and mentioned that over 10,000 volumes had been added to the University library. The inspection of the various schools of the University had been continued, and through the reports of the inspectors the Senate was acquiring a valuable store of information. The Senate had also investigated the general question of the salaries of the teaching staffs; it was largely want of money, and the Principal hinted that gifts for the augmentation of salaries would be very welcome. The grants for scholarships had been increased from £1,800 to £3,000 a year; this had made it possible to establish two university post-graduate travelling studentships open to internal and external graduates in all faculties, and three post-graduate studentships open to the faculties of theology, arts, laws, music, and engineering.

Correspondence had passed during the year between the University and the Treasury upon the subject of the Bloomsbury site, but this matter, so important a chapter in the history of the future, still remained for decision. The departmental committee established by the President of the Board of Education had been sitting for some months to consider the final report of the Royal Commission on University Education in London (1913), and to indicate the principal changes now most needed in the existing constitution of the University of London. Its findings might be awaited with confidence, remembering that, in whatever form the body of the University constitution might be moulded, the spirit which gave it life and growth remained.

The annual service for graduates was held at Westminster Abbey at 5.45, and a graduation dinner followed at Drapers' Hall at 8 p.m.

MEDICAL RESEARCH FUND.

Applications for grants from the Thomas Smythe Hughes Medical Research Fund for assisting medical research must be sent to the Academic Registrar (from whom full particulars can be obtained) by June 15th.

UNIVERSITY OF GLASGOW.

THE History of Medicine prize has been awarded to Dr. Dan McKenzie (London) for his essay entitled "The infancy of medicine." This is the first award of the prize, value £60, founded by a professor in the Faculty of Medicine.

ROYAL COLLEGE OF PHYSICIANS OF IRELAND.

W. H. ASHMORE has been admitted a licentiate in medicine of the College.

CONJOINT BOARD IN SCOTLAND.

THE following candidates have been approved at the examination indicated:

D.P.H.—D. G. Anderson, M. J. Pett, A. H. Campbell, Agnes F. Dickson, W. Fraser, Clara F. Gertzen, Jean M. Gilchrist, Mary M. Jack, J. C. Lindsay, P. L. McKinlay, Elizabeth P. Y. Paterson, G. H. Percival, W. C. Sharp, Annie V. Taylor, J. Walker, Elizabeth Wheatley, A. B. Williamson, Anne C. Wilson. *Part I:* Ruth M. Allinson, Mary V. F. Beattie, Elizabeth S. Cook, Elsie B. Dickinson, Jane T. Gilmour, Hilda R. Hay, R. Levinson, W. R. Logan, Elizabeth M. Mackay, R. Norton, Margaret M. Paterson, J. Sachs, D. A. M. Shearer, M. Somerville, Jeanie M. Strathie, H. W. Sutherland. *Part II:* G. A. Pollock.

Medical News.

THE Leicester Medical Society has issued invitations to the opening of the Leicester Private Hospital on Wednesday afternoon, May 20th. The new hospital, in Regent Road, is the gift of Mr. T. Fielding Johnson, J.P., late chairman of the Leicester Royal Infirmary. It has been built and equipped, as far as possible, with all the facilities and conveniences of a voluntary hospital. The object of the donor has been to make available for the use of private patients the advantages of a modern hospital. The capital outlay having been given, it is intended that, as regards its maintenance and upkeep, the hospital shall be managed on a self-supporting basis. It is open to the patients of any medical practitioner, with no restriction upon free choice of doctor. There is accommodation for fifty patients, mostly in single rooms, and provision has been made for the reception of medical, surgical, and maternity cases.

A FESTIVAL dinner in aid of the funds of the Infants Hospital, Vincent Square, Westminster, was held at the Guildhall on May 8th, under the chairmanship of H.R.H. Prince Henry, who read a telegram from his sister, Princess Mary, president of the hospital, wishing success to the occasion. In proposing the toast of "The Infants Hospital," Prince Henry said it was the first of its kind to be established in Europe; it was founded with the object of placing on a scientific basis the management of infants up to 5 years of age, the treatment of diseases of nutrition, and the investigation of means by which infantile mortality could be prevented. A subscription list of £15,000 was announced, which included £4,500 subscribed by friends of the hospital for the endowment of nine cots at a cost of £500 each, in honour of His Royal Highness's presidency at the festival.

THE annual prizegiving at the London Hospital Medical College will take place on Tuesday, June 2nd, at 3 p.m. The prizes and certificates will be distributed by Dr. Charles H. Mayo of Rochester, Minnesota, in the Medical College library, and the distribution will be followed by a garden party in the hospital grounds.

H.R.H. THE DUKE OF YORK has accepted the Honorary Presidentship of the thirty-sixth Congress of the Royal Sanitary Institute to be held at Edinburgh from July 20th to 25th, at which the Secretary for Scotland will preside and deliver the inaugural address.

THE annual general meeting of the London and Counties Medical Protection Society will be held at the offices of the society, Victory House, Leicester Square, W.C.2, on Wednesday, May 20th, at 4 p.m.

THE bi-annual dinner of the Aberdeen University Club, London, will be held at Gatti's Restaurant on Thursday, May 21st, at 7.30 p.m. The Hon. Sir Arthur Greer will be in the chair, and Sir Leslie McKenzie, M.D., will be the guest of honour. Dr. Milligan, 11, Upper Brook Street, W.1, will be pleased to hear from either men or women graduates wishing to join the club or attend the dinner.

THE Fellowship of Medicine announces that Dr. T. W. Eden will lecture at No. 1, Wimpole Street, on May 18th, at 5.30 p.m., on the prevention of puerperal sepsis. On the same date will begin the two weeks' course for general practitioners at the London Temperance Hospital; at 4.30 p.m. a clinical demonstration will be given, and at 5.30 a brief lecture. A special course will be held at the Infants Hospital from May 18th to 30th, and a two weeks' afternoon course in dermatology has been arranged from May 18th to the end of the month by the Hospital for Diseases of the Skin (Blackfriars); a special demonstration of cases will take place on May 19th. During June there will be courses in diseases of the chest at the Victoria Park Hospital for Diseases of the Heart and Lungs, in gynaecology at the Chelsea Hospital for Women, in tropical medicine at the London School of Hygiene and Tropical Medicine, in urology at St. Peter's Hospital, in venereal diseases at the London Lock Hospital, and an intensive course in general medicine, surgery, and the specialties at the London Temperance Hospital. Full particulars may be obtained from the Secretary of the Fellowship of Medicine at No. 1, Wimpole Street, W.1.

A SUMMER school of maternity and child welfare will be held in London, under the auspices of the National Baby Week Council, from July 1st to 7th. Sir Arthur Newsholme will preside over a session dealing with maternal mortality and morbidity in childbirth, the introductory address being contributed by Dame Janet Campbell, M.D. Addresses will also be given by Dr. A. E. Giles, on medical preventive measures; by Dr. Mabel Brodie, on the social problem of establishing preventive measures for combating maternal mortality and morbidity; and by Dr. James Fenton, on the administrative aspect of preventive measures. Visits will be paid to hospitals for children and other institutions of interest to child welfare workers. The full programme may be obtained from the Secretary, National Baby Week Council, 117, Piccadilly, W.1.

AT a meeting of the Royal Microscopical Society to be held at 20, Hanover Square, at 8 p.m., on Wednesday, May 20th, Dr. R. J. Ludford, of the Institute of Anatomy, University College, will read a paper on the cytology of cancer.

THE annual medical missionary breakfast of the Medical Prayer Union will be held on Wednesday, May 20th, at the Refectory, University College, Gower Street, W.C., at 8 a.m., under the presidency of Mrs. Scharlieb, C.B.E., M.D., M.S. An address will be given by Dr. E. J. Peill, of Tsangchow. An intimation of intention to be present will be welcomed by the honorary secretary, Dr. Tom Jays, Livingstone College, Leyton, E.10.

THE late Sir G. Anderson Critchett, Bt., surgeon oculist to the King, who died in February last, left estate of the gross value of £92,150, with net personalty £91,632. He has bequeathed £100 each to Epsom College and to the Royal Medical Benevolent Fund.

THE seventh Congress of the Middle German Surgical Association will be held at Chemnitz on June 6th and 7th, when the following subjects will be discussed: modern treatment of carcinoma of the rectum, introduced by Professor Reichel; surgical treatment of pulmonary tuberculosis, introduced by Dr. Wendel of Magdeburg.

IN his report for 1924 Dr. Walter Garstang, the medical officer of health for the urban district of Hucknall (population 17,760), states that the small-pox outbreak which began in August, 1923, continued throughout 1924. The total cases in 1924 were 193, and all were removed to hospital. The vaccinated numbered 37 and the unvaccinated 156. Of the vaccinated none were under 20 years of age, and 15 were vaccinated after exposure to infection. The disease has been of a very mild type, and the medical officer is emphatic that it can be stamped out only by vaccination, and that, looking to the continued neglect of vaccination, cases of small-pox may be expected for a considerable time—probably for years.

DR. J. G. MACQUEEN of the Middle Temple, and Drs. W. R. H. Heddy and R. B. Davidson of Gray's Inn, were called to the Bar on May 6th.

THERE has been a reduction in mortality from tuberculosis in Germany from 26 per 10,000 inhabitants in 1919 to 11.5 in 1923. Germany possesses 514 sanatoriums for tuberculosis, with a total of 43,000 beds.

THE following foreign appointments have been recently announced: Dr. Stoeltzner of Halle to be professor of children's diseases in the University of Königsberg; Dr. H. E. Sigerist of Zürich to succeed Professor Sudhoff in the chair of the history of medicine at Leipzig; Dr. Ceelen to be professor of morbid anatomy at Greifswald University in succession to Professor Grosz; Dr. Eric Hessé to be professor of surgery at Leningrad; Dr. Ombrédanne to be professor of the surgery of childhood and orthopaedics, and Dr. Roussy professor of pathological anatomy, in the Paris faculty of medicine; Dr. Lecercle to be professor of clinical surgery in the Damascus faculty of medicine; Dr. C. Roques has been nominated professor of medical physics in the Bordeaux faculty of medicine in place of the late Professor Bergonié; and Dr. Patel has been nominated professor of operative surgery in the Lyons medical faculty.

THE late Mr. J. David Williams of Styal, Cheshire, a director of the Manchester Ship Canal Company, has left estate of the gross value of £634,959, with net personalty £529,080. He has bequeathed one hundred £10 fully paid up preference shares in the Manchester Ship Canal Company each to the Manchester Royal Infirmary, for cancer research; to the Ancoats Hospital and Ardwick and Ancoats Dispensary, to endow a J. D. Williams bed; and to St. Mary's Hospital, Manchester, to endow a J. D. Williams bed.

WE have received the first issue of the *Journal of the Australian Veterinary Association*; it bears date March, 1925. It is edited by Mr. M. Henry, with the assistance of an editorial committee, and is issued from the Veterinary School of the University of Sydney. It contains several original articles, and a report of the fourth general meeting of the Australian Veterinary Association held in Adelaide last year. It is intended to keep veterinarians in Australia acquainted with the progress of their art and also to let the rest of the world know what is being done in Australia.

THE first International Child Welfare Congress will be held in Geneva from August 24th to 28th, under the patronage of the Swiss Federal Government, and it is anticipated that about 1,000 delegates from fifty different countries will be present. Papers will be contributed by Sir Henry Gauvain, Mr. R. C. Elmslie, Dr. Cyril Burt, and Dr. D. C. Kirkwood. The congress will be divided into three sections, the first dealing with hygiene and medicine, under the presidency of Professor Clemens Pirquet, director of the children's clinic at the University of Vienna; the second, concerned with social welfare and administration, under the presidency of Mr. George Scelle, professor of international law at Dijon; and the third, which will discuss educational propaganda, will be presided over by the Marchioness of Aberdeen, president of the International Council of Women.

ONE of the results of the earthquake in Japan has been a great deterioration in the sanitary conditions. During 1924 three times as many cases of typhoid fever occurred as in 1923; 3,869 cases were admitted to hospital, and 198 deaths were due to this cause in November alone. Infantile mortality in Japan is also very high.

THE Dutch Congress of Public Health will be held at Leeuwarden on June 26th and 27th.

WE regret to announce the death, on May 13th, of Dr. Howard H. Tooth, C.B., C.M.G., consulting physician to St. Bartholomew's Hospital and to the National Hospital for the Paralysed and Epileptic. We hope to publish an obituary notice next week.

Letters, Notes, and Answers.

ALL communications in regard to editorial business should be addressed to ***The EDITOR, British Medical Journal, 429, Strand, W.C.2.***

ORIGINAL ARTICLES and LETTERS forwarded for publication are understood to be offered to the BRITISH MEDICAL JOURNAL alone unless the contrary be stated. Correspondents who wish notice to be taken of their communications should authenticate them with their names, not necessarily for publication.

Matter intended for the current issue should be posted so as to arrive by the first post on Monday, though in special circumstances urgent communications can usually be received on Tuesday morning.

Authors desiring REPRINTS of their articles published in the BRITISH MEDICAL JOURNAL must communicate with the Financial Secretary and Business Manager, 429, Strand, W.C.2, on receipt of proofs.

All communications with reference to ADVERTISEMENTS, as well as orders for copies of the JOURNAL, should be addressed to the Financial Secretary and Business Manager, 429, Strand, W.C.2. Attention to this request will avoid delay.

The ***TELEPHONE NUMBER*** of the BRITISH MEDICAL ASSOCIATION and BRITISH MEDICAL JOURNAL is *GERRARD 2630* (Internal Exchange).

The ***TELEGRAPHIC ADDRESSES*** are:

EDITOR of the BRITISH MEDICAL JOURNAL, *Aitiology Westrand, London.*

FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate Westrand, London.*

MEDICAL SECRETARY, *Mediocra Westrand, London.*

The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin (telegrams: *Bacillus, Dublin*; telephone: 4737 Dublin), and of the Scottish Office, 6, Rutland Square, Edinburgh (telegrams: *Associate, Edinburgh*; telephone: 4361 Central).

QUERIES AND ANSWERS.

"IGNORAMUS" asks whether there is any record of injections of adrenaline, used for the relief of spasmodic asthma, inducing eczema or aggravating an existing attack of eczema.

INCOME TAX.

Additional Assessments.

"M. H." (Kent) has received notices of assessment for the three years 1921–22 to 1923–24, that for 1921–22 being the second additional notice. What are his chances of appealing successfully?

*** We should advise our correspondent to write to his local inspector of taxes giving formal notice of appeal, to keep himself right as regards the time limit, and asking for information as to what precise fees or emoluments the assessments cover. It is at least possible that it may be found that the additional assessments may relate to some particular earnings which have been included in the general Schedule D return and already assessed accordingly.

The "Cash Basis."

"E. N. B." has been assessed on the "cash basis" for the last seven years in respect of the same practice. He has now been requested to state the amount of his outstanding book debts, presumably with a view to the alteration of the basis from "cash receipts" to "bookings."

*** This matter was discussed in November, 1921 (see SUPPLEMENT to the BRITISH MEDICAL JOURNAL of 19th of that month), between a principal inspector at Somerset House and two officials of the Association. "E. N. B." may usefully refer to the account given in the SUPPLEMENT; it may suffice to say here that the attitude of the authorities appears to be to regard the cash basis as well adapted to the assessment in normal circumstances of medical practitioners and as the usual custom, to be departed from only where special circumstances render it inequitable. "E. N. B." might point this out to the inspector of taxes and inquire what, in his opinion, are the special circumstances which require a departure from the normal custom in his case. In the last resort, "E. N. B." should insist on deducting from the nominal amount of his book debts a reasonable amount for (*a*) cost of collection and (*b*) irrecoverable debts.

LETTERS, NOTES, ETC.

"RELIABLE."

DR. WILLIAM L. STOREY (Belfast) writes: In the instructive editorial, "The suffix '-itis,'" in your issue of March 28th, reference is made to the disappearance of the word "trustworthy" and its replacement by "reliable." According to the *New English Dictionary* that piece of bad money, as you would call it, was first uttered only about 1850, and the earliest illustration is from one of Gladstone's writings: "1857—Gladstone in *Oxford Ess.*: He seems to think that the reliable chronology of Greece begins before its reliable history." The Grand Old Man revelled apparently in the use of that word, but later on his addiction was cured by Dean Stanley. Mr. Frederick Locker-Lampson in *My Confidences* describes how it was effected: "Dean Stanley complained that, much as he had seen of Gladstone, and often as he had talked with him, he did not think he had ever influenced him in anything. 'Yes,' said the Dean, recollecting himself, 'I influenced him in one matter. I told him he ought never to use the word *reliable*, and I gave him my reasons. Some time afterwards I met Gladstone in the street, and he said, as we parted, *I have never used that wretched* word 'reliable' since you spoke to me about it.'" Curiosity prompts one to ask, What were the reasons which the Dean advanced with such beneficial effect?

RELIEF OF PAIN IN BURNS AND SCALDS.

DR. E. NICHOLAS HUGHES (Wallasey) writes with reference to the note by Dr. W. F. Moore (Kingsbury) on the treatment of burns and scalds (May 9th, p. 908): When acting as a house-surgeon some three years ago I used a treatment for the relief of pain in burns and scalds which I found extremely efficacious. The affected part, after cleansing and removal of fragments of clothing, etc., was painted with solution of novocain (1/2 per cent.). Picric acid was then applied and the part covered with white lint soaked in sterile liquid paraffin. In very extensive burns and scalds nepenthe or tincture of opium was given by mouth. Young children treated in this way were often soundly asleep within an hour of being admitted into hospital. I have applied the novocain treatment to very young babies, with no signs of toxic effect. It is difficult to sterilize carron oil; liquid paraffin can be readily sterilized without undergoing decomposition.

Dr. REGINALD COCK (London, E.2) writes to draw Dr. Moore's attention to the following statement in Whitla's *Pharmacy, Materia Medica, and Therapeutics* (tenth edition): "Opium has no sedative influence on sensory nerve endings, hence it is a mistake to employ the drug or its alkaloids for the local relief of pain."

HAEMORRHAGE AND TEETH EXTRACTION.

DR. CYRIL HOWKINS (Birmingham) writes in reply to "Borneo" (May 9th, p. 908): The means I should adopt to prevent excessive haemorrhage following extraction of the teeth would be to get the gums in as healthy condition as possible by removing any salivary calculus; mouth-washes, etc., before the operation. I should for forty-eight hours dose the patient with calcium lactate, 20 grains three times a day, and an hour before extraction inject 2 c.cm. of haemoplastin (P., D. and Co.); 2 c.cm. or more later if necessary. The extraction should be carefully done, and the alveolus well pressed into place directly after extraction. The patient should then remain quiet in a sitting position. If any haemorrhage of serious nature occurs, plug with oil of turpentine.

DANGERS OF ZINC STEARATE DUSTING POWDERS.

ON August 16th, 1924 (p. 286), we referred to the dangers of zinc stearate dusting powders reported by American investigators. At a meeting of the board of trustees of the American Medical Association in June, 1924, a special committee reported that it had obtained no evidence that zinc stearate dusting powders possessed any advantages over other dusting powders, and that special containers with permanently attached covers were essential in order to prevent infants from being poisoned. A second report by this committee (*Journal of the American Medical Association* of March 7th, 1925, p. 750) states that details of 131 cases of poisoning had been received, of which 28 terminated fatally. The committee had also obtained indirectly reports of many other accidents arising from the use of zinc stearate powders, and considered the danger greater than was originally surmised. A conference was arranged with the manufacturers and distributors of these powders at the end of October, 1924, and subsequently it was unanimously agreed to adopt a self-closing type for containers, and further consideration was given to the number, size, and shape of openings in it. A precautionary statement on the label was held to be desirable, and it was agreed that this should be submitted by the manufacturers to the committee for its approval. The committee, therefore, recommended that, in view of this action on the part of the manufacturers, no steps should be taken by the Association for the introduction of legislation, but that all manufacturers of these powders should be requested to use such a self-closing container, and also that the use of zinc stearate as a dusting powder for infants should be discouraged by the medical profession.

STAGES OF DRUNKENNESS.

DR. J. GOOD (Tenbury) writes: Having unfortunately had considerable experience of drunkenness, I suppose I ought to express my opinion thereon. As idiosyncrasies vary in different persons, so do the effects of alcohol on individuals. Some may consume a lot, others but little, before entering on the stages of drunkenness. Those are:—(1) *Fool:* When the whole vitality is apparently stimulated and the man becomes merry, restless, witty, and facetious. In this stage in motoring he may take on and successfully negotiate increased risks. (2) *Knave:* When his higher moral nature is dulled and he becomes more indifferent to right and wrong, and more careless in motor driving. (3) *Ruffian:* When his higher moral nature is in abeyance his animal instincts are more conspicuous. He may become vicious on trifling matters—for example, should another car pass him—and a public peril. (4) *An inert lump of humanity:* Lost beneath the fumes of his anaesthetic, he may fall beside the road and sleep off his debauch, or into a river or ditch and be suffocated. He is unable to drive a car. (5) *A corpse:* At the disposal of the coroner. As regards diagnosis, the surgeon must use his own powers in differentiation, discreetly remembering that difficult pronouncements, chalk lines, and poises alone are unreliable, and that the police constable, being more familiar with the accused and with his type of humanity, may be better able to judge of a deviation from his normal condition. The shock of detection or accident may recover a man in stage 1 or 2, but he is too fortified in stage 3. Speaking for the chauffeur, "he may drive a car in stage 1," but, speaking for the public, "not at all," as the public becomes to him of decreasing importance from the beginning.

LITERARY NEOLOGISMS AND BARBARISMS.

"M.A., M.D." writes from India: May I be allowed to enter what I hope will prove a timely protest against the threatened introduction into English medical literature of barbarisms such as "to evaluate," instead of "to value"; "to stress," instead of "to lay stress upon"; "view point," instead of "point of view"; "such and such diet *was fed to* such and such an animal," instead of "such and such an animal *was fed with* such and such diet"; and the like? I would quote in this connexion the exceedingly apposite remarks of Peter Mark Roget, himself a member of our profession, on the use of such expressions in the beautifully written introduction to his well known *Thesaurus of English Words and Phrases*:

> "Some modern writers, however, have indulged in a habit of arbitrarily fabricating new words and a new-fangled phraseology without any necessity, and with manifest injury to the purity of the language. This vicious practice, the offspring of indolence or conceit, implies an ignorance or neglect of the riches in which the English language already abounds, and which would have supplied them with words of recognized legitimacy, conveying precisely the same meaning as those they so recklessly coin in the illegal mint of their own fancy."

ANTHRAX IN TANGANYIKA.

DR. OWEN FITZPATRICK (Singida, Tanganyika Territory) writes to record the fact that during March seven cases of anthrax have been reported, all amongst natives. Of the two cases it was possible to admit to hospital both presented typical cutaneous lesions—in the one case of the shoulder, and in the other of the abdomen. The infection had occurred some four days before. There were no constitutional symptoms and the treatment was purely local. Both patients recovered. Of the other five cases one was fatal; this patient had eaten the meat from an animal that had died.

VACANCIES.

NOTIFICATIONS of offices vacant in universities, medical colleges and of vacant resident and other appointments at hospitals will be found at pages 38, 39, 40, 41, 44, and 45 of our advertisement columns, and advertisements as to partnerships, assistantships and locumtenencies at pages 42 and 43.

A short summary of vacant posts notified in the advertisement columns appears in the *Supplement* at page 207.